Vol. 1020 Number 3

OFFICIAL GAZETTE

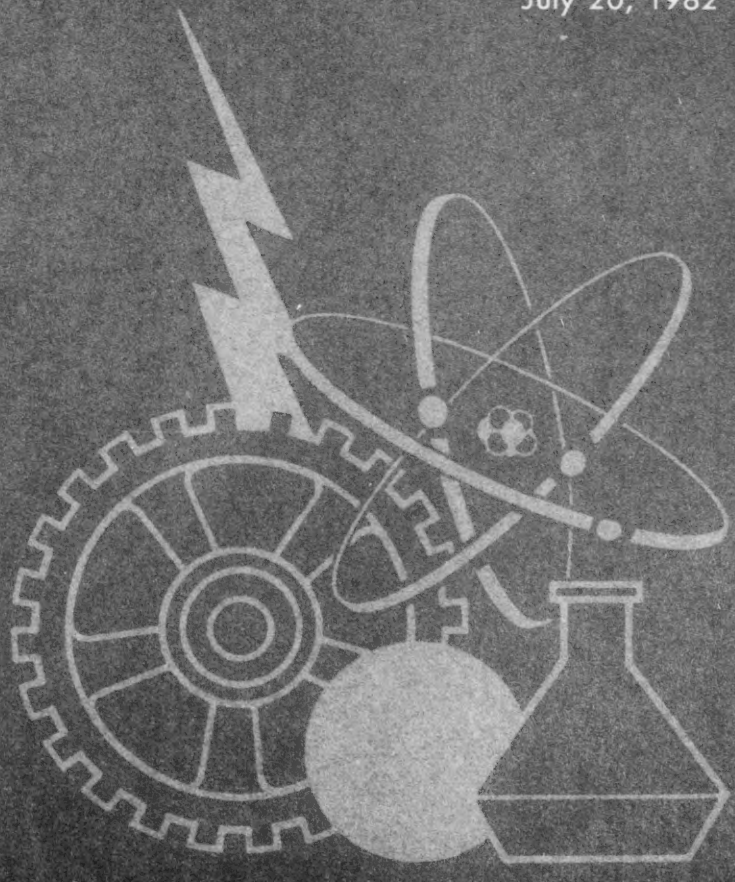
of the

UNITED STATES PATENT AND TRADEMARK OFFICE

Route to:

PATENTS

July 20, 1982



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OFFICIAL GAZETTE of the UNITED STATES PATENT and TRADEMARK OFFICE

July 20, 1982 Volume 1020 Number 3

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PATENT AND TRADEMARK OFFICE NOTICES

Patent Cooperation Treaty Information

For information concerning the PCT member countries and the most recent PCT rule changes see the notices appearing in the Official Gazette at 1001 O.G. 14 on Dec. 9, 1980 and at 1012 O.G. 20 on Nov. 17, 1981.

Note that the international fees have been increased as of Jan. 1, 1982. The current schedule of fees is as follows:

Transmittal fee	$ 35.00
Search fee	300.00
International Fees	
Basic Fee (first 30 pages)	270.00
Basic Supplemental Fee (for each sheet over 30)	6.00
Designation Fees	65.00

GERALD J. MOSSINGHOFF,
Jan. 19, 1982. *Commissioner of Patents and Trademarks.*

REISSUE APPLICATIONS FILED

Notice under 37 CFR 1.11(b). The reissue applications listed below are open to inspection by the general public in the indicated Examining Groups and copies may be obtained by paying the fee therefor (37 CFR 1.21(b)).

4,152,922, Re. S.N. 316,992, Filed Nov. 2, 1981, Cl. 73/3, APPARATUS AND METHOD FOR DETERMINING THE CHARACTERISTIC OF A FLOWMETER, Edward E. Francison, Owner of Record: *Flow Technology, Inc., Phoenix, Ariz.,* Attorney or Agent: Leroy T. Rahn, Ex. Gp.: 244

4,185,532, Re. S.N. 366,362, Filed Apr. 7, 1982, Cl. 84/126, ENVELOPE GENERATOR, Teruo Hiyoshi, et al., Owner of Record: *Nippon Gakki Seizo Kabushiki Kaisha, Hamamatsu, Japan,* Attorney or Agent: Robert Spensley, Ex. Gp.: 217

4,203,788, Re. S.N. 379,937, Filed May 19, 1982, Cl. 156/044, METHOD AND APPARATUS FOR MANUFACTURING CEMENTITIOUS REINFORCED PANELS, Theodore E. Clear, Owner of Record: *Inventor,* Attorney or Agent: Herbert C. Brinkman, et al., Ex. Gp.: 161

4,214,930, Re. S.N. 376,670, Filed May 10, 1982, Cl. 156/1, WEATHERSTRIP AND METHOD FOR SEALING A GAP, Allen J. Burrous, Owner of Record: *Schlegel Corp., Rochester, N.Y.,* Attorney or Agent: George W. Shaw, Ex. Gp.: 161

4,254,045, Re. S.N. 371,650, Filed Apr. 26, 1982, Cl. 260/397.2, 1a-HYDROXY-2B-FLUOROCHOLECALCIFEROL, Hector F. Deluca, et al., Owner of Record: *Wisconsin Alumni Research Foundation, Madison, Wis.,* Attorney or Agent: Howard W. Bremer, Ex. Gp.: 125

4,259,618, Re. S.N. 360,228, Filed Mar. 22, 1982, Cl. 315/360, ELECTRONIC ASSEMBLY, Ole K. Nilssen, Owner of Record: *Inventor,* Attorney or Agent: William E. Lucas, et al., Ex. Gp.: 256

REQUESTS FOR REEXAMINATION FILED

Notice under 37 CFR 1.11(c). The requests for reexamination listed below are open to inspection by the general public in the indicated Examining Groups. Copies of the requests and related papers may be obtained by paying the fee therefor established in the Rules (37 CFR 1.21(b)).

In the event correspondence to the patent owner is not received, this notice will be considered to be constructive notice to the patent owner and reexamination will proceed (37 CFR 1.248(a)(5) and 1.525(b).

3,903,158, Reexam. No. 90/000,218, Requested: June 16, 1982, Cl. 564/73, PROCESS FOR REDUCING THE BIURET CONTENT IN UREA, Jose Cabello Fuentes, et al., Owner of Record: *Guanos y Fertilizantes de Mexico, Mexico 13, D.F.,* Attorney or Agent: Ladas, Parry, Von Gehr, Goldsmith & Deschamps, Ex. Gp.: 117, Requester: James H. Laughlin, Jr., Attorney-At-Law, Arlington, Va.

Extension of Time for Filing Notices of Opposition to Marks Published in the Official Gazette Dated June 8, 1982

Some copies of the Official Gazette dated June 8, 1982 were not mailed until June 16, 1982. Therefore, for marks published in the Official Gazette dated June 8, 1982, Notices of Opposition filed by July 16, 1982 will be considered timely.

MARGARET M. LAURENCE,
June 17, 1982. *Assistant Commissioner for Trademarks.*

Extension of Time for Filing Notices of Opposition to Marks Published in the Official Gazette Dated June 15, 1982

Some copies of the Official Gazette dated June 15, 1982 were not mailed until June 23, 1982. Therefore for marks published in the Official Gazette dated June 15, 1982, Notices of Opposition filed by July 23, 1982 will be considered timely.

MARGARET M. LAURENCE,
June 25, 1982. *Assistant Commissioner for Trademarks.*

New Patent Drawing Correction Procedures

Drawings charged out from the Patent and Trademark Office, for the purpose of making changes or corrections, will be released from the Drafting Branch after the mailing of the Notice of Allowance. Most drawings should be available for charge out one week to ten days after the Notice of Allowance mail date. The major exception to this procedure will be when the examiner requires that drafting corrections be made prior to the Notice of Allowance issuance. We anticipate that this exception requirement will occur only for Design applications being appealed.

Unless a duplicate copy of the Drafting Letter has been filed by the attorney/applicant, the Office will not normally provide the commercial bonded draftsman with copies of either examiner approved drawing correction letters or a copy of the Patent and Trademark Office draftsman's noted informalities. It is the applicant's responsibility to provide copies of the necessary drawing corrections and the noted informalities. When drawings are borrowed from the Office draftsman, the serial number, batch number, and Notice of Allowance mailing date should be identified.

If for any reason a corrected and/or substitute drawing is not acceptable, a letter will be sent to the attorney/applicant. A bonded commercial draftsman

must present a copy of this letter in order to borrow the unacceptable drawings.

THERESA A. BRELSFORD,
June 28, 1982. *Acting Assistant Commissioner for Administration.*

Automated Search Experiments

Research and evaluation projects dealing with 1) automated full text searching of U.S. Trademarks, 2) automated phonetic searching of U.S. Trademarks, 3) automated prefix/suffix searching of U.S. Trademarks, and 4) automated searching of design marks. To further this objective, the PTO has entered into an agreement with CSG Corp. and Pergamon International Information Corp., to provide the PTO access to and support for the use of their trademark searching systems. Using these systems, the PTO will test and evaluate the effectiveness of searching the full text of up to 80,000 U.S. Trademarks and up to 6,000 design marks. As part of this experiment, the PTO will furnish a special compilation of tapes containing the full text of pending U.S. Trademarks, and a special compilation of copies of design marks, suitable for filming.

The PTO would welcome multiple experiments using the same or similar techniques and/or technology, and thus the PTO is willing to enter into the same agreement, or a similar agreement on mutually agreeable terms, with any other responsible party, within 60 days from the date of this notice. Additional information regarding this matter may be obtained from:

J. Howard Bryant, Administrator for Automation, U.S. Patent and Trademark Office, Wash., D.C. 20231 Tel. (703) 557-0410.

GERALD J. MOSSINGHOFF,
June 15, 1982. *Commissioner of Patents and Trademarks.*

Adverse Decisions in Interference

In the designated interference involving the indicated claims of the following patents, final decisions having been rendered that the respective patentees were not the first inventors with respect to the claims listed.

Patent No. 3,385,818, O.S. Kauder, RIGID POLYVINYL CHLORIDE RESIN COMPOSITIONS HAVING INCREASED RESISTANCE TO HEAT DETERIORATION, Interference No. 99,658, decided Feb. 5, 1982, claims 1, 2, 4, 5, 6, 10 & 11.

Patent No. 3,884,693, S. Bauer & H. Sikora, LIGHT-SENSITIVE TRANSFER MATERIAL, Interference No. 99,992, decided Feb. 10, 1982, claim 10.

Patent No. 3,902,889, L.E. Malin, ELECTRIC ARC MELTING FURNACE, Interference No. 99,999, decided Feb. 2, 1982, claims 1, 4, 5, 9, 10, 13, 14, 16, 20, 21, 22, 24, 28, 29, 32, 33, 35, 38 & 39.

Patent No. 3,973,139, A.G.F. Dingwall, LOW POWER COUNTING CIRCUITS, Interference No. 100,094, decided Feb. 2, 1982, claims 1–10.

Patent No. 4,117,340, E. Goto, T. Souma, M. Idesawa & K. Tanaka, ELECTRON BEAM EXPOSURE SYSTEM, Interference No. 100,196, decided Feb. 24, 1982, claims 1–4 & 7.

Patent No. 4,246,178, A. Yamamoto, K. Taguchi, A. Hayashida & T. Ishihara, TETRAHYDROPYRAN-5-ONE COMPOUNDS, Interference No. 100,769, decided Apr. 7, 1982, claims 1–4.

Patent No. 4,248,601, E.R. McGough & A. Adams, PROCESS FOR REDUCING THE SODIUM CHLORIDE CONTENT OF A POTASSIUM SALT, Interference No. 100,733, decided Apr. 29, 1982, claims 1, 3, 4, 7–11.

NANNIE B. HENRY,
Deputy Clerk,
Board of Patent Interferences.

Errata

The following registration numbers, listed in the "Trademark Registrations Issued" section of the Official Gazette of Feb. 9, 1982, Feb. 23, 1982, May 4, 1982, May 11, 1982, and May 18, 1982, were assigned, prematurely, to published marks for which the opposition period had not yet run:

TMOG Feb. 9, 1982	TMOG May 11, 1982
1,189,330	1,195,159
	1,195,363
TMOG Feb. 23, 1982	**TMOG May 18, 1982**
1,190,489	1,195,820
1,190,594	
1,190,770	
TMOG May 4, 1982	
1,194,621	
1,194,721	

Consequently, certificates of registration bearing the above-identified numbers were not issued on the dates indicated, and these registration numbers have been vacated.

MARGARET M. LAURENCE,
June 15, 1982. *Assistant Commissioner for Trademarks.*

Delay in Move of Trademark Post Registration Section and Trademark Classification Team

A notice published in the June 29, 1982 issue of the *Official Gazette* indicated that the Trademark Post Registration Section and Trademark Classification Team would be moving from the lobby level of Crystal Plz. Bldg. 1 to the 8th floor of Crystal Plz. Bldg. 2 near the end of June. The move has been delayed and is now expected to take place later in the summer. As soon as a new date is scheduled, it will be published in the *Official Gazette.*

MARGARET M. LAURENCE,
June 24, 1982. *Assistant Commissioner for Trademarks.*

Registration to Practice

The following list contains the names of persons applying for registration to practice before the United States Patent and Trademark Office. Information tending to affect the eligibility of said applicants on moral, ethical, or other grounds, should be furnished the Commissioner of Patents and Trademarks on or before Aug. 17, 1982.

DONALD J. QUIGG,
June 17, 1982. *Chairman, Committee on Enrollment.*

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PATENT NOTICES

Certificates of Correction for the Week of July 20, 1982

3,691,372	4,294,187	4,315,981	4,323,077
3,726,348	4,296,431	4,316,037	4,323,290
3,812,533	4,299,105	4,316,060	4,323,337
4,021,566	4,299,516	4,316,070	4,323,414
4,135,135	4,301,004	4,316,095	4,323,493
4,182,712	4,301,226	4,316,203	4,323,548
4,202,802	4,301,608	4,316,397	4,323,972
4,208,977	4,302,590	4,316,731	4,324,311
4,209,261	4,305,981	4,316,878	4,324,415
4,212,863	4,308,100	4,316,893	4,324,571
4,228,940	4,308,994	4,317,560	4,324,683
4,242,138	4,309,429	4,318,139	4,324,722
4,247,439	4,309,528	4,319,352	4,324,772
4,259,183	4,309,758	4,319,435	4,325,509
4,259,699	4,309,841	4,319,690	4,326,049
4,261,579	4,310,316	4,320,001	4,326,291
4,264,340	4,310,583	4,320,260	4,327,132
4,268,509	4,310,900	4,320,487	4,327,146
4,268,582	4,311,320	4,320,609	4,327,156
4,269,771	4,311,789	4,320,660	4,328,098
4,271,086	4,312,703	4,321,025	4,328,348
4,271,843	4,312,981	4,321,066	4,328,386
4,272,354	4,313,124	4,321,240	4,328,737
4,273,577	4,313,200	4,321,403	4,328,852
4,277,207	4,313,242	4,321,892	4,329,125
4,277,391	4,313,684	4,321,899	4,329,247
4,278,555	4,313,732	4,322,003	4,329,464
4,278,779	4,313,831	4,322,251	4,329,750
4,283,726	4,314,071	4,322,297	4,329,775
4,285,264	4,314,103	4,322,351	4,330,357
4,285,720	4,314,228	4,322,441	4,330,528
4,285,919	4,314,360	4,322,671	4,330,717
4,289,790	4,314,495	4,322,695	4,330,824
4,289,860	4,314,700	4,322,861	4,330,882
4,289,989	4,315,766	4,322,900	
4,292,453	4,315,823	4,322,922	
4,293,224	4,315,947	4,322,960	

Reference Collections of U.S. Patents Available for Public Use in Patent Depository Libraries

The libraries listed herein, designated as patent depository libraries, receive current issues of U.S. Patents and maintain collections of earlier issued patents. The scope of these collections varies from library to library, ranging from patents of only recent months or years in some libraries to all or most of the patents issued since 1870, or earlier, in other libraries.

These patent collections are open to public use and each of the patent depository libraries, in addition, offers the publications of the patent classification system (e.g. The Manual of Classification, Index to the U.S. Patent Classification, Classification Definitions, etc.) and provides technical staff assistance in their use to aid the public in gaining effective access to information contained in patents. With one exception, as noted in the table following, the collections are organized in patent number sequence.

Depending upon the library, the patents may be available in microfilm, in bound volumes of paper copies, or in some combination of both. Facilities for making paper copies from either microfilm in reader-printers or from the bound volumes in paper-to-paper copies are generally provided for a fee.

Owing to variations in the scope of patent collections among the patent depository libraries and in their hours of service to the public, anyone contemplating use of the patents at a particular library is advised to contact that library, in advance, about its collection and hours, so as to avert possible inconvenience.

State	*Name of Library*	*Telephone Contact*
Alabama	Birmingham Public Library	(205) 254-2555
Arizona	Tempe: Science Library, Arizona State University	(602) 965-7607
California	Los Angeles Public Library	(213) 626-7555 Ext. 273
	Sacramento: California State Library	(916) 322-4572
	Sunnyvale: Patent Information Clearinghouse*	(408) 738-5580
Colorado	Denver Public Library	(303) 571-2122
Delaware	Newark: University of Delaware	(302) 738-2238
Georgia	Atlanta: Price Gilbert Memorial Library, Georgia Institute of Technology	(404) 894-4519
Illinois	Chicago Public Library	(312) 269-2865
Louisiana	Baton Rouge: Troy H. Middleton Library, Louisiana State University	(504) 388-2570
Massachusetts	Boston Public Library	(617) 536-5400 Ext. 265
Michigan	Detroit Public Library	(313) 833-1450
Minnesota	Minneapolis Public Library & Information Center	(612) 372-6552
Missouri	Kansas City: Linda Hall Library	(816) 363-4600
	St. Louis Public Library	(314) 241-2288 Ext. 214, 215
Nebraska	Lincoln: University of Nebraska-Lincoln, Engineering Library	(402) 472-3411
New Hampshire	Durham: University of New Hampshire Library	(603) 862-1777
New Jersey	Newark Public Library	(201) 733-7814
New York	Albany: New York State Library	(518) 474-5125
	Buffalo and Erie County Public Library	(716) 856-7525 Ext. 267
	New York Public Library (The Research Libraries)	(212) 930-0850
North Carolina	Raleigh: D. H. Hill Library, N.C. State University	(919) 737-3280
Ohio	Cincinnati & Hamilton County, Public Library of	(513) 369-6936
	Cleveland Public Library	(216) 623-2870
	Columbus: Ohio State University Libraries	(614) 422-6286
	Toledo/Lucas County Public Library	(419) 255-7055 Ext. 212
Oklahoma	Stillwater: Oklahoma State University Library	(405) 624-6546
Pennsylvania	Philadelphia: Franklin Institute Library	(215) 448-1321**
	Pittsburgh: Carnegie Library of Pittsburgh	(412) 622-3138
	University Park: Pattee Library, Pennsylvania State University	(814) 865-4861
Rhode Island	Providence Public Library	(401) 521-7722 Ext. 226
South Carolina	Charleston: Medical University of South Carolina	(803) 792-2372
Tennessee	Memphis & Shelby County Public Library and Information Center	(901) 528-2957
Texas	Dallas Public Library	(214) 748-9071
	Houston: The Fondren Library, Rice University	(713) 527-8101 Ext. 2587
Washington	Seattle: Engineering Library, University of Washington	(206) 543-0740
Wisconsin	Madison: Kurt F. Wendt Engineering Library, University of Wisconsin	(608) 262-6845
	Milwaukee Public Library	(414) 278-3043

*Collection organized by subject matter.

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PATENT EXAMINING CORPS

RENE D. TEGTMEYER, Assistant Commissioner

WILLIAM FELDMAN, Deputy Assistant Commissioner

CONDITION OF PATENT APPLICATIONS AS OF June 12, 1982

PATENT EXAMINING GROUPS	Actual Filing Date of Oldest New Case Awaiting Action
CHEMICAL EXAMINING GROUPS	
GENERAL CHEMISTRY AND PETROLEUM CHEMISTRY, GROUP 110—D. E. TALBERT, Director ..... Inorganic Compounds; Inorganic Compositions; Organo-Metal and Organo-Metalloid Chemistry; Metallurgy; Metallurgical Apparatus; Metal Stock; Electro Chemistry; Batteries; Hydrocarbons; Mineral Oil Technology; Lubricating Compositions; Gaseous Compositions; Fuel and Igniting Devices.	6-23-80
GENERAL ORGANIC CHEMISTRY, GROUP 120—C. E. VAN HORN, Director ..... Heterocyclic Amides; Alkaloids; Azo; Sulfur; Misc. Esters; Carbohydrates; Herbicides; Poisons; Medicines; Cosmetics; Steroids; Oxo and Oxy; Quinones; Acids; Carboxylic Acid Esters; Acid Anhydrides; Acid Halides.	1-04-80
HIGH POLYMER CHEMISTRY, PLASTICS AND MOLDING, GROUP 140—J. O. THOMAS, JR., Director .... Synthetic Resins; Rubber; Proteins; Macromolecular Carbohydrates; Mixed Synthetic Resin Compositions; Synthetic Resins With Natural Polymers and Resins; Reclaiming; Pore-Forming; Compositions (Part) e.g., Coating; Molding; Ink; Prosthdontics; Adhesive and Abrading Compositions; Molding, Shaping, Treating Process, and Apparatus Therefor; Irradiation (Part); Bleaching; Dyeing; Leather, Fur and Textile Treating Compositions.	4-03-81
COATING, LAMINATING AND PHOTOGRAPHY, GROUP 160—S. N. ZAHARNA, Director ..... Coating: Processes, Apparatus and Misc. Products; Laminating Methods and Apparatus; Stock Materials; Adhesive Bonding; Special Chemical Manufactures; Special Utility Compositions; and Photography.	4-20-81
SPECIALIZED CHEMICAL INDUSTRIES AND CHEMICAL ENGINEERING, GROUP 170—R. F. WHITE, Director ..... Fertilizers; Foods; Fermentation; Analytical Chemistry; Reactors; Sugar and Starch; Paper Making; Glass Manufacture; Gas; Heating and Illuminating; Cleaning Processes; Liquid Purification; Distillation; Preserving; Liquid, Gas, and Solid Separation; Gas and Liquid Contact Apparatus; Refrigeration; Concentrative Evaporators; Mineral Oils Apparatus; Misc. Physical Processes.	2-12-81
ELECTRICAL EXAMINING GROUPS	
INDUSTRIAL ELECTRONICS, PHYSICS AND RELATED ELEMENTS, GROUP 210—S. W. ENGLE, Director Generation and Utilization; General Applications; Conversion and Distribution; Heating and Related Art Conductors; Switches; Photography; Motion Pictures; Horology; Acoustics; Recorders; Weighing Scales.	9-11-80
SPECIAL LAWS ADMINISTRATION, GROUP 220—KENNETH L. CAGE, Director ..... Ordnance, Firearms and Ammunition; Lubrication; Illumination; Nuclear Reactors; Acoustics, Communications, Optics; Radar; Directional Radio; Torpedoes; Seismic Exploring; Cathode Ray Tube Circuitry; Cryptography; Laser Devices; Radioactive Materials; Powder Metallurgy, Rocket Fuels; Special, Fuel, Explosive and Thermic Compositions; Thermal and Photoelectric Batteries.	8-29-80
INFORMATION TRANSMISSION, STORAGE, AND RETRIEVAL, GROUP 230—EARL LEVY, Director ..... Communications; Multiplexing Techniques; Television; Facsimile; Data Processing, Computation and Conversion; Storage Devices and Related Arts.	6-20-80
RECEPTACLES, CLEANING, WINDING, AND MEASURING, GROUP 240—G. M. FORLENZA, Director ..... Receptacles; Bearings; Joint Packing; Conduits; Switches; Presses; Plumbing Fixtures; Textile Spinning; Cleaning; Food Treating; Agitating; Centrifugal Separating; Geometrical Instruments; Sound Recording; Image Projectors; Web Feeding; Winding and Reeling; Cable Hoists; Measuring and Testing; Indicating; Fluent Material Handling; Shaft; Impellers; Rotary Fluid Motors.	12-07-79
ELECTRONIC COMPONENT SYSTEMS AND DEVICES, GROUP 250—S. S. MATTHEWS, Director ..... Semi-Conductor and Space Discharge Systems and Devices; Electronic Component Circuits; Wave Transmission Lines and Networks; Optics; Radiant Energy; Measuring.	11-26-79
DESIGN, GROUP 290—KENNETH L. CAGE, Director ..... Industrial Arts; Household, Personal and Fine Arts.	6-22-80
MECHANICAL EXAMINING GROUPS	
HANDLING AND TRANSPORTING MEDIA, GROUP 310—B. R. GRAY, Director ..... Conveyors; Hoists; Elevators; Article Handling Implements; Store Service; Sheet Feeding; Dispensing; Fluid Sprinkling; Fire Extinguishers; Coin Handling; Check Controlled Apparatus; Classifying and Assorting Solids; Boats; Ships; Aeronautics; Motor and Land Vehicles and Appurtenances; Brakes; Railways and Railway Equipment.	10-09-80
MATERIAL SHAPING, ARTICLE MANUFACTURING, TOOLS, GROUP 320—M. M. NEWMAN, Director ... Manufacturing Processes, Assembling, Combined Machines, Special Article Making; Metal Deforming; Sheet Metal and Wire Working; Metal Fusion-Bonding, Metal Founding; Machine Tools for Shaping or Dividing; Work and Tool Holders, Woodworking; Tools; Cutlery; Jacks; Fishing, Etc.; Butchering; and Books and Printed Matter.	10-03-80
AMUSEMENT, HUSBANDRY, PERSONAL TREATMENT, INFORMATION, GROUP 330—R. E. AEGERTER, Director ..... Amusement and Exercising Devices; Projectors; Animal and Plant Husbandry; Plants; Harvesting; Earth Working and Excavating; Tobacco; Artificial Body Members; Dentistry; Jewelry; Surgery; Toiletry; Printing; Typewriters; Information Dissemination.	2-13-80
HEAT, POWER, AND FLUID ENGINEERING, GROUP 340—D. J. STOCKING, Director ..... Power Plants; Combustion Engines; Fluid Motors; Reaction Motors; Pumps; Rotary Engines and Pumps; Heat Generation and Exchange; Refrigeration; Ventilation; Drying; Temperature and Humidity Regulation; Couplings; Gearing; Fluid Handling and Control; Lubrication.	5-01-80
GENERAL CONSTRUCTIONS, TEXTILES, MINING AND GEARING, GROUP 350—A. L. SMITH, Director ..... Building Structures; Racks; Cabinets; Closures; Supports; Furniture; Fasteners; Locks; Pipe Couplings; Joints; Miscellaneous Hardware; Textiles; Sewing Machines; Apparel; Footwear; Earth Engineering; Earth Drilling; Mining; Wells; Roads; Bridges; Tool Driving; Gearing; Machine Elements; Clutches.	7-24-80

Expiration of patents: The patents within the range of numbers indicated below expire during May 1982, except those which may have expired earlier due to shortened terms under the provisions of Public Law 690, 79th Congress, approved August 8, 1946 (60 Stat. 940) and Public Law 619, 83rd Congress, approved August 23, 1954 (68 Stat. 764), or which may have had their terms curtailed by disclaimer under the provisions of 35 U.S.C. 253. Other patents, issued after the dates of the range of numbers indicated below, may have expired before the full term of 17 years for the same reasons, or have lapsed under the provisions of 35 U.S.C. 151.

Patents ..... Numbers 3,186,004 to 3,192,535, inclusive

Plant Patents ..... Numbers 2,522 to 2,542 inclusive

REEXAMINATIONS

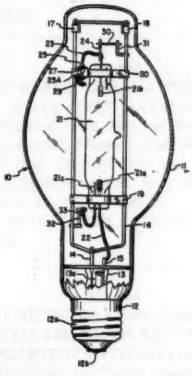
JULY 20, 1982

Matter enclosed in heavy brackets [ ] appears in the patent but forms no part of this reexamination specification; matter printed in italics indicates additions made by reexamination

B1 4,156,830 (8th)
HIGH INTENSITY DISCHARGE LAMP WITH INTEGRAL MEANS FOR ARC EXTINGUISHING

Herbert S. Strauss, Paramus; Lawrence Sheinberg, Howell Township, Monmouth County, both of N.J., assignor to the Duro-Test Corp., North Bergen, N.J.

Reexamination Request No. 90/000,030, Jul. 16, 1981
Reexamination Certificate for Patent No. 4,156,830, issued May 29, 1979, Ser. No. 577,096, May 13, 1975.
Int. Cl.[3] H01J *7/44, 13/46, 17/34;* **H01K** *1/62.*
U.S. Cl. 315—73



AS A RESULT OF REEXAMINATION, IT HAS BEEN DETERMINED THAT:

The patentability of claims 1-17 is confirmed.

1. A high intensity arc discharge lamp comprising:

a first envelope having means therein for producing an arc discharge emitting optical radiation at least a portion of which is in the visible range in response to an applied voltage.

means for applying voltage to the arc discharge producing means of said first envelope to produce the arc therein, and

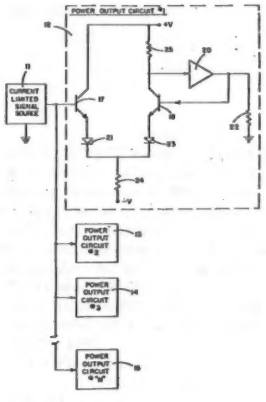
a second, normally sealed envelope within which the first envelope is mounted,

said means for applying the voltage including mechanically operated safety switch means located in the space between said first and second envelopes having at least one spring element against which pressure is exerted by the second envelope, the second element of said switch means having the pressure removed therefrom in response to the breaking of the second envelope and said switch means being activated to remove the voltage applied to the arc discharge producing means of said first envelope and to extinguish the arc.

B1 4,180,780 (9th)
INPUT DECOUPLING CIRCUIT FOR TRANSISTOR DIFFERENTIAL AMPLIFIER

Paul S. Rumbaugh, Garden Grove, Calif., assignor to Altec Corporation, Anaheim, Calif.

Reexamination Request No. 90/000/050, Aug. 7, 1981.
Reexamination Certificate for Patent No. 4,180,780, issued Dec. 25, 1979, Ser. No. 947,629, Oct. 2, 1978.
Int. Cl.[3] H03F *3/45*
U.S. Cl. 330—252



AS A RESULT OF REEXAMINATION, IT HAS BEEN DETERMINED THAT:

The patentability of claims 1-5 is confirmed.

1. A reference voltage source circuit comprising: a differential amplifier having input terminals and an output terminal; a pair of transistors having bases connected in common and collectors respectively connected to different input terminals of said differential amplifier; load resistors connected to said transistor collectors; means for supplying said transistors with collector currents through said respective load resistors; means for coupling the output terminal of said differential amplifier to the common base junction of said transistors; and adjusting means for adjusting said collector currents of said transistors so that the sum of the base-emitter forward junction voltage $V_{BE}T1$ of one of said pair of transistors and α-times a difference voltage ΔV_{BE} between said voltages V_{BE} of said pair of transistors, α being a positive constant, is equal to a silicon energy bandgap voltage; wherein β-times said silicon energy bandgap voltage, α being a constant at least equal to one, is an output reference voltage of said reference voltage source circuit.

B1 3,654,090 (10th)

METHOD FOR THE DETERMINATION OF ANTIGENS AND ANTIBODIES

Antonius Hermanus Wilhelmus Maria Schuurs; Bauke Klaas van Weemen, both of Oss, The Netherlands, assignor to Organon, Inc., West Orange, N.J.

Reexamination Request No. 90/000,015, Jul. 1, 1981.
Reexamination Certificate for Patient No. 3,654,090, issued Apr. 4, 1972, Ser. No. 762,120, Sep. 24, 1968.
Int. Cl.[3] G01N *33/54*
U.S. Cl. 435/7.

AS A RESULT OF REEXAMINATION, IT HAS BEEN DETERMINED THAT:

The patentability of claims 1–7 is confirmed.

1. Method for the immunochemical determination of a component of the antigen-antibody reaction comprising adding to a sample containing the component to be determined an amount of one component of said antigen-antibody reaction in an insolubilized form and an adjusted amount of the other component convalently linked to an enzyme, allowing the immunochemical reaction to take place, separating the free component from the bound enzyme-labelled component to form two fractions, and determining the enzyme activity of one of these fractions which is a measure of the amount of said component present in the said sample.

7. A [reagent] *test-system* for the determination of the antigen-antibody reaction, consisting of:

(a) one component in an insolubilized form; *and*

(b) the other component covalently linked to an enzyme, *whereby*

each of (a) and (b) is provided in a known amount, and the ratio of (a) to (b) is known, wherein the known amounts are sufficient to provide for an optimal measurement for a qualitative or quantitative heterogeneous enzyme immunoassay.

ERRATA

In the OFFICIAL GAZETTE, Vol. 1019, No. 3, June 15, 1982, incomplete dates appeared in the bibliographic portion of patents listed on pages 1011 through 1162, Patent Numbers 4,334,962 through 4,335,470, and on pages 1163 through 1188, Design Patent Numbers 264,890 through 265,014. The corrected bibliographic portion for these patents is as follows:

CHEMICAL

JUNE 15, 1982

4,334,962
APPARATUS FOR STRIPPING IMMISCIBLE MATERIALS
Gordon P. Gerow, Davenport, Fla., assignor to FMC Corporation, Chicago, Ill.
Division of Ser. No. 865,150, Dec. 28, 1977, which is a division of Ser. No. 399,238, Sep. 20, 1973, Pat. No. 4,113,573. This application Jul. 20, 1978, Ser. No. 926,596
Int. Cl.[3] B01D *3/06*
U.S. Cl. 202—185 R — 19 Claims

4,334,963
EXHAUST HOOD FOR UNLOADING ASSEMBLY OF COKE-OVEN BATTERY
Wilhelm Stog, Waltrop, Fed. Rep. of Germany, assignor to WSW Planungs-GmbH, Waltrop, Fed. Rep. of Germany
Filed Aug. 29, 1980, Ser. No. 182,651
Claims priority, application Fed. Rep. of Germany, Sep. 26, 1979, 2938893; Dec. 22, 1979, 2952179
Int. Cl.[3] C10B *33/00, 33/14*
U.S. Cl. 202—263 — 10 Claims

4,334,964
PROCESS FOR SEPARATING THE REACTION PRODUCTS OBTAINED FROM ETHERIFYING LOWER ISOOLEFINS WITH METHANOL
Milan Prezelj, Frankfurt am Main; Gunter Osterburg, Duisburg, and Joachim E. Putz, Dreieich-Offenthal, all of Fed. Rep. of Germany, assignors to Edeleanu Gesellschaft mbH, Frankfurt am Main, Fed. Rep. of Germany
Filed Jun. 12, 1981, Ser. No. 273,171
Claims priority, application Fed. Rep. of Germany, Jun. 27, 1980, 3024147
Int. Cl.[3] B01D *3/34*
U.S. Cl. 203—14 — 11 Claims

4,334,965
PROCESS FOR RECOVERY OF OLEFINIC NITRILES
Hsin-Chih Wu, Parma, Ohio, assignor to Standard Oil Company, Cleveland, Ohio
Filed Dec. 31, 1980, Ser. No. 221,666
Int. Cl.[3] B01D *3/40;* C07C *121/32*
U.S. Cl. 203—25 — 11 Claims

4,334,966
METHOD OF COPPER PLATING GRAVURE CYLINDERS
Sidney C. Beach, Parma, and C. Richard Frisby, Strongsville, both of Ohio, assignors to McGean Chemical Company, Inc., Cleveland, Ohio
Filed May 19, 1981, Ser. No. 265,143
Int. Cl.[3] C25D *3/38, 7/00*
U.S. Cl. 204—25 — 10 Claims

4,334,967
METHOD FOR PREPARING 1,2-DICHLOROETHANE
Gurami A. Tedoradze, proezd Shokalskogo, 67, korpus 2, kv. 268, Moscow; Valentina A. Paprotskaya, mikroraion Serebryanka, 3, kv. 90, Moskovskaya oblast, Pushkino; Andrei P. Tomilov, 5 Parkovaya ulitsa, 56, korpus 6, kv. 59, Moscow; Evegina A. Ponomarenko, shosse Entuziastov, 100, kv. 148, Moscow, and Jury M. Sokolov, Okruzhnoi proezd, 33, korpus 1, kv. 72, Moscow, all of U.S.S.R.
PCT No. PCT/SU79/00001, § 371 Date Sep. 23, 1980, § 102(e) Date Jun. 4, 1980, PCT Pub. No. WO80/01686, PCT Pub. Date Aug. 21, 1980
PCT Filed Jan. 23, 1979, Ser. No. 252,976
Int. Cl.[3] C25B *3/06*
U.S. Cl. 204—81 — 5 Claims

4,334,968
APPARATUS FOR GENERATION OF CHLORINE/CHLORINE DIOXIDE MIXTURES
Charles T. Sweeney, 448 Earle Rd., Hewitt, Tex. 76643
Continuation-in-part of Ser. No. 92,645, Nov. 8, 1979, Pat. No. 4,256,552. This application Feb. 13, 1980, Ser. No. 121,114
The portion of the term of this patent subsequent to Mar. 17, 1998, has been disclaimed.
Int. Cl.[3] C25B *1/46, 9/00;* C02F *1/76;* F04H *3/16*
U.S. Cl. 204—96 — 28 Claims

4,334,969

PHOTOCHEMICAL PROCESS FOR THE SYNTHESIS OF STROBILURIN

Wolfgang Steglich, Bonn-Röttgen; Georg Schramm, Hennef-Lichtenberg; Timm Anke, and Franz Oberwinkler, both of Tübingen, all of Fed. Rep. of Germany, assignors to Hoechst Aktiengesellschaft, Frankfurt am Main, Fed. Rep. of Germany

Filed Jul. 2, 1981, Ser. No. 279,737

Claims priority, application Fed. Rep. of Germany, Jul. 4, 1980, 3025368

Int. Cl.³ B01J *19/08*

U.S. Cl. 204—158 R 1 Claim

4,334,970

RADIATION CURABLE SOLVENT-FREE COMPOSITIONS RECOVERY SYSTEM

Louis J. Lombardi, Roselle, and Roy J. Coyne, Hometown, both of Ill., assignors to The Richardson Company, Des Plaines, Ill.

Division of Ser. No. 739,183, Nov. 5, 1976, Pat. No. 4,201,842, which is a continuation of Ser. No. 405,407, Oct. 11, 1973, abandoned. This application Dec. 26, 1979, Ser. No. 106,556

Int. Cl.³ C08F *2/50;* C08J *3/28;* C08K *5/03;* C08L *29/08*

U.S. Cl. 204—159.15 9 Claims

4,334,971

MANUFACTURE OF RESILIENT FOAMS BASED ON A MELAMINE-FORMALDEHYDE CONDENSATE

Harald Mahnke; Guenter Kreibiehl, both of Ludwigshafen; Heinz Weber, Gruenstadt, and Frank P. Woerner, Wachenheim, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Del.X

Filed Mar. 11, 1981, Ser. No. 242,561

Claims priority, application Fed. Rep. of Germany, Mar. 27, 1980, 3011769

Int. Cl.³ C08G *2/02*

U.S. Cl. 204—159.21 4 Claims

4,334,972

AMPHOLYTE AND ITS USE IN SEPARATION PROCESSES

John L. Söderberg, Upsala, Sweden, assignor to Pharmacia Fine Chemicals AB, Upsala, Sweden

Continuation of Ser. No. 64,359, Aug. 7, 1979, abandoned, which is a continuation of Ser. No. 891,105, Mar. 28, 1978, abandoned. This application Oct. 21, 1980, Ser. No. 199,232

Claims priority, application Sweden, Apr. 26, 1977, 7704783

Int. Cl.³ B01D *57/02;* C07C *101/00*

U.S. Cl. 204—180 R 8 Claims

4,334,973

PROCESS FOR ELECTROPHORETICALLY FORMING AN IMIDE COATING ON WIRE

Nancy W. Carlson, Murrysville; Dean C. Westervelt, Acme, and Luciano C. Scala, Murrysville, all of Pa., assignors to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Jul. 18, 1980, Ser. No. 171,932

Int. Cl.³ C25D *13/06, 13/10, 13/16*

U.S. Cl. 204—181 R 17 Claims

4,334,974

ELECTROCHEMICAL OXYGEN SENSOR, PARTICULARLY FOR USE WITH EXHAUST GASES OF INTERNAL COMBUSTION ENGINES, AND ESPECIALLY FOR POLAROGRAPHIC APPLICATION

Klaus Muller, Tramm; Helmut Maurer, Schwieberdingen; Ernst Linder, Muhlacker; Franz Rieger, Aalen; Karl H. Friese, Leonberg; Harald Reber; Hermann Dietz, both of Gerlingen; Hermann Ziener, Moglingen; Friedrich Esper, Leonberg, and Gerhard Holfelder, Ditzingen, all of Fed. Rep. of Germany, assignors to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

Filed Feb. 14, 1980, Ser. No. 121,598

Claims priority, application Fed. Rep. of Germany, Feb. 23, 1979, 2907032

Int. Cl.³ G01N *27/58*

U.S. Cl. 204—195 S 14 Claims

4,334,975

APPARATUS FOR ELECTROLYTIC PRODUCTION OF MAGNESIUM METAL FROM ITS CHLORIDE

Hiroshi Ishizuka, 19-2, Ebara 6-chome, Shinagawa-ku, Tokyo, Japan

Filed Sep. 18, 1980, Ser. No. 188,589

Claims priority, application Japan, Sep. 27, 1979, 54-124890; Oct. 3, 1979, 54-127710; Sep. 5, 1980, 55-123910

Int. Cl.³ C25C *3/04, 3/22, 7/02*

U.S. Cl. 204—247 16 Claims

4,334,976

UPGRADING OF RESIDUAL OIL

Tsoung Y. Yan, Philadelphia, Pa., assignor to Mobil Oil Corporation, New York, N.Y.

Continuation-in-part of Ser. No. 186,927, Sep. 12, 1980. This application Jan. 13, 1981, Ser. No. 224,778

Int. Cl.³ C10G *1/00, 45/00, 17/00*

U.S. Cl. 208—8 LE 16 Claims

4,334,977

METHOD FOR THE GENERATION OF RECYCLE SOLVENTS IN COAL LIQUEFACTION

Francis J. Derbyshire, Ewing; Philip Varghese, Trenton, and Darrell D. Whitehurst, Titusville, all of N.J., assignors to Mobil Oil Corporation, New York, N.Y.

Filed Jan. 15, 1981, Ser. No. 225,283

Int. Cl.³ C10G *1/00*

U.S. Cl. 208—8 LE 5 Claims

4,334,978

DEWAXING AND WAX FILTERABILITY BY REDUCING SCRAPER SPEED IN SCRAPED SURFACE CHILLING UNITS

Thomas E. Broadhurst, Sarnia, Canada, assignor to Exxon Research & Engineering Co., Florham Park, N.J.

Continuation-in-part of Ser. No. 86,455, Oct. 19, 1979, abandoned. This application Nov. 24, 1980, Ser. No. 209,475

Int. Cl.³ C10G *73/32*

U.S. Cl. 208—33 24 Claims

4,334,979

HYDROCARBON CRACKING PROCESS USING A CATALYST CONTAINING GERMANIUM

Brent J. Bertus, and Dwight L. McKay, both of Bartlesville, Okla., assignors to Phillips Petroleum Company, Bartlesville, Okla.

Filed Apr. 11, 1980, Ser. No. 139,483

Int. Cl.³ C10G *11/05*

U.S. Cl. 208—114 22 Claims

4,334,980
NON-PUFFING PETROLEUM COKE
Harry L. Hsu, Johnson City, Tenn., assignor to Great Lakes Carbon Corporation, New York, N.Y.
Continuation-in-part of Ser. No. 8,838, Feb. 2, 1979, abandoned. This application Mar. 31, 1980, Ser. No. 135,717
Int. Cl.³ C10G *9/14*
U.S. Cl. 208—125 9 Claims

4,334,981
COKER BLOW DOWN RECOVERY SYSTEM
Richard L. Holloway, Bellingham, Wash.; John A. Miller, Seabrook, Tex., and Jerald E. Winters, El Toro, Calif., assignors to Atlantic Richfield Company, Philadelphia, Pa.
Division of Ser. No. 43,940, May 30, 1979, Pat. No. 4,261,954. This application Nov. 3, 1980, Ser. No. 202,954
Int. Cl.³ C10G *9/14*
U.S. Cl. 208—131 3 Claims

4,334,982
PROCESS FOR THE SELECTIVE DESULFURIZATION OF OLEFINIC CUTS
Yves Jacquin, Sevres, and Jean-Francois Le Page, Rueil Malmaison, both of France, assignors to Institut Francais du Petrole, Rueil Malmaison, France
Filed May 21, 1980, Ser. No. 152,215
Claims priority, application France, May 21, 1979, 79 13067
Int. Cl.³ C10G *23/02*
U.S. Cl. 208—216 R 18 Claims

4,334,983
STRIPPING STEAM RECYCLE FOR SOLVENT RECOVERY PROCESSES
David Mentzer, Lake Hiawatha, N.J., assignor to Exxon Research & Engineering Co., Florham Park, N.J.
Filed Jun. 30, 1980, Ser. No. 164,802
Int. Cl.³ C10G *21/20*
U.S. Cl. 208—326 10 Claims

4,334,984
APPARATUS FOR PROCESSING LOW-GRADE WASTE PAPER
Svetozar Vagac; Anton Kostka; Milan Carsky; Lubor Sedlacek; Jaroslav Navratil, all of Bratislava; Jiri Mueller, Litovel; Rudolf Kmeco, Litovel, and Vaclav Knob, Litovel, all of Czechoslovakia, assignors to Vyzkumny ustav papieru a celulozy, Bratislava, Czechoslovakia
Continuation-in-part of Ser. No. 87,929, Oct. 25, 1979, abandoned. This application Feb. 2, 1981, Ser. No. 230,313
Claims priority, application Czechoslovakia, Oct. 26, 1978, 6953-78
Int. Cl.³ B03B *7/00, 9/06*
U.S. Cl. 209—3 4 Claims

4,334,985
SELECTIVE RHEOLOGICAL SEPARATION OF CLAYS
Ralph E. Turner, Jr., Tennille, Ga., assignor to Anglo-American Clays Corporation, Sandersville, Ga.
Filed Dec. 15, 1980, Ser. No. 216,652
Int. Cl.³ B03B *1/00*
U.S. Cl. 209—5 12 Claims

4,334,986
SEPARATOR FOR A MIXTURE OF A SUSPENSION AND COARSE HEAVY PARTICLES
Rune H. Frykhult, Huddinge, Sweden, assignor to AB Celleco, Tumba, Sweden
Filed Feb. 25, 1981, Ser. No. 238,114
Claims priority, application Sweden, Feb. 25, 1980, 8001440
Int. Cl.³ B04C *9/00*
U.S. Cl. 209—17 18 Claims

4,334,987
METHOD OF SEPARATION OF SOLID PHASE IN DRILLING MUD
Ulmas D. Mamadzhanov, Ts-I, dom 19, kv. 25; Vitold M. Bakhir, proezd Gaidara, 7"A", kv. 17; Vladimir I. Klimenko, Chilanzar, kvartal 23, dom 3, kv. 37; Jury G. Zadorozhny, Chilanzar, kvartal 2, dom 59, kv. 12, and Stanislav A. Alekhin, Chilanzar, kvartal 24, dom 53, kv. 89, all of Tashkent, U.S.S.R.
PCT No. PCT/SU79/00128, § 371 Date Nov. 27, 1980, § 102(e) Date Sep. 17, 1980, PCT Pub. No. WO80/02041, PCT Pub. Date Oct. 2, 1980
PCT Filed Nov. 27, 1979, Ser. No. 212,087
Claims priority, application U.S.S.R., Mar. 27, 1979, 2736503; Mar. 27, 1979, 2736504
Int. Cl.³ B03B *5/00*
U.S. Cl. 209—210 10 Claims

4,334,988
CONTROL OF DIALYSIS AND ULTRAFILTRATION
Lee J. Milligan, Englewood, Colo., assignor to Hospal Medical Corp., Littleton, Colo.
Continuation-in-part of Ser. No. 750,151, Dec. 13, 1976, abandoned, which is a continuation-in-part of Ser. No. 668,420, Mar. 19, 1976, abandoned, and a continuation-in-part of Ser. No. 645,427, Dec. 30, 1975, abandoned. This application Aug. 4, 1980, Ser. No. 174,856
Int. Cl.³ B01D *31/00*
U.S. Cl. 210—87 8 Claims

4,334,989
FUEL-WATER SEPARATOR WITH PISTON-CHECK VALVE WATER DISPOSAL TO EVAPORATOR
John F. Hall, Bloomfield Hills, Mich., assignor to Chrysler Corporation, Highland Park, Mich.
Filed Dec. 29, 1980, Ser. No. 221,140
Int. Cl.³ B01D *35/02*
U.S. Cl. 210—114 3 Claims

4,334,990
CARTRIDGE FOR ACTIVE FILTRATION AND TREATMENT OF LIQUID METALS AND ALLOYS
Pierre du Manoir de Juaye, Cognin; Pierre Guerit, Chambery; Gilbert Pollet, La Ravoire, and Jean-Marie Hicter, Voiron, all of France, assignors to Servimetal, Paris, France
Filed Aug. 15, 1980, Ser. No. 178,432
Claims priority, application France, Aug. 24, 1979, 79 21957
Int. Cl.³ B01D *27/02, 27/04*
U.S. Cl. 210—186 21 Claims

4,334,991
BAFFLES FOR SEPTIC TANK PORTS
Earl R. Beede, R.F.D. #3, Concord, N.H. 03301
Continuation of Ser. No. 47,758, Jun. 12, 1979, abandoned. This application Nov. 18, 1980, Ser. No. 207,956
Int. Cl.³ B01D *21/24*
U.S. Cl. 210—232 10 Claims

4,334,992
MODULAR BLOCK FOR OSMOTIC METHODS OF SEPARATION
Wulf von Bonin, Leverkusen; Jürgen Lahrs, and Eberhard Born, both of Cologne, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany
Filed Feb. 4, 1980, Ser. No. 118,333
Claims priority, application Fed. Rep. of Germany, Feb. 24, 1979, 2707319
Int. Cl.³ B01D *31/00*
U.S. Cl. 210—241 3 Claims

4,334,993
POTTED-TYPED SEAL WITH STRESS RELIEF AND METHOD OF MAKING SAME
William W. Norton, Lincolnshire, Ill., assignor to Baxter Travenol Laboratories, Inc., Deerfield, Ill.
Filed Dec. 5, 1979, Ser. No. 100,684
Int. Cl.³ B01D *31/00*
U.S. Cl. 210—321.3 7 Claims

4,334,994
DISPOSABLE FLUID FILTERS
Richard V. Jensen, Cookeville, Tenn., assignor to Fleetguard, Inc., Columbus, Ind.
Continuation-in-part of Ser. No. 865,544, Dec. 29, 1977, abandoned. This application Dec. 21, 1978, Ser. No. 970,731
Int. Cl.³ B01D *25/02*
U.S. Cl. 210—336 6 Claims

4,334,995
FILTER ASSEMBLY HAVING AN EXTRUDED FILTER HEAD
Robert M. Mahon, Stoughton, Wis., assignor to Nelson Industries, Inc., Stoughton, Wis.
Filed Aug. 25, 1980, Ser. No. 180,877
Int. Cl.³ B01D *29/24*
U.S. Cl. 210—340 7 Claims

4,334,996
TUBE PRESSURE FILTERS
Bernard H. Broad, St. Austell, England, assignor to English Clays Lovering Pochin & Co. Limited, Cornwall, England
Continuation of Ser. No. 924,802, Jul. 14, 1978, abandoned, which is a continuation of Ser. No. 748,188, Dec. 7, 1976, abandoned. This application Nov. 26, 1979, Ser. No. 97,934
Claims priority, application United Kingdom, Dec. 18, 1975, 51974/75
Int. Cl.³ B01D *25/12;* B30B *9/06*
U.S. Cl. 210—350 7 Claims

4,334,997
ANAEROBIC DIGESTER TECHNOLOGY
Richard E. Peterson, 382 Pierce Ave., St. Paul, Minn. 55104
Filed Feb. 6, 1981, Ser. No. 231,959
Int. Cl.³ C02F *3/28*
U.S. Cl. 210—603 11 Claims

4,334,998
PROCESS FOR PLACING A GAS PHASE, AT LEAST ONE LIQUID PHASE, AND AT LEAST ONE COMMINUTED SOLID PHASE IN CONTACT
Gilbert M. Rios; Henri Gibert, and Jean-Louis Baxerres, all of Montpellier, France, assignors to Agence Nationale de Valorisation de la Recherche (ANVAR), Neuilly sur Seine, France
Filed Jun. 26, 1980, Ser. No. 163,168
Claims priority, application France, Jun. 29, 1979, 79 17430
Int. Cl.³ C02F *3/08;* B01J *47/10*
U.S. Cl. 210—617 12 Claims

4,334,999
PROCESS FOR THE EXTRACTION OF METAL IONS
David A. Cornwell, Okemos, Mich., assignor to Board of Trustees, Michigan State University, East Lansing, Mich.
Continuation of Ser. No. 99,019, Nov. 30, 1979, abandoned, which is a continuation-in-part of Ser. No. 25,321, Mar. 30, 1979, abandoned. This application Mar. 3, 1981, Ser. No. 240,186
Int. Cl.³ B01D *11/00;* C02F *1/26, 1/42*
U.S. Cl. 210—638 19 Claims

4,335,000
CHROMATE ION REMOVAL FROM AQUEOUS SOLUTIONS
Jesse G. Grier, Gilbertsville, Ky., and Jimmie R. Hodges, Downington, Pa., assignors to Pennwalt Corporation, Philadelphia, Pa.
Continuation-in-part of Ser. No. 956,755, Nov. 1, 1978, abandoned, which is a continuation of Ser. No. 832,866, Sep. 13, 1977, abandoned. This application Feb. 4, 1980, Ser. No. 118,047
Int. Cl.³ C02F *1/42*
U.S. Cl. 210—662 17 Claims

4,335,001
PROCESS AND DEVICE FOR SEPARATION OF EMULSIONS BY COALESCENCE
Yves Aurelle, Aucamville; Jean-Paul Calteau, Saint-Louis, and Henri Roques, Portet-sur-Garo, all of France, assignors to Agence Nationale de Valorisation de la Recherche (A.N.-V.A.R.), Neuilly-sur-Seine, France
Continuation of Ser. No. 866,817, Jan. 4, 1978, abandoned. This application Nov. 21, 1979, Ser. No. 96,580
Claims priority, application France, Jan. 4, 1977, 77 00203
Int. Cl.³ B01D *17/04*
U.S. Cl. 210—708 13 Claims

4,335,002
COMPOSITIONS OF MATTER CONTAINING CIS-3-HEXENAL
Cynthia J. Mussinan, Bricktown; Braja D. Mookherjee, Holmdel; Manfred H. Vock, Locust; Frederick L. Schmitt, Holmdel; Edward J. Granda, Englishtown; Joaquin F. Vinals, Red Bank, all of N.J., and Jacob Kiwala, Brooklyn, N.Y., assignors to International Flavors & Fragrances Inc., New York, N.Y.
Division of Ser. No. 85,707, Oct. 17, 1979, Pat. No. 4,241,098. This application Jul. 17, 1980, Ser. No. 169,678
Int. Cl.³ A23L *1/226, 2/26;* A61K *7/46;* C11B *9/00*
U.S. Cl. 252—1 1 Claim

4,335,003
PREPARATION AGENT FOR THE PRODUCTION OF SYNTHETIC FILAMENTS
Christlieb Nordschild, Stuttgart; Paul Rathfelder, Boeblingen; Horst Rieckert, Calw, and Dieter Wolber, Magstadt, all of Fed. Rep. of Germany, assignors to Schill & Seilacher GmbH & Co., Boeblingen, Fed. Rep. of Germany
Filed Jul. 3, 1980, Ser. No. 165,569
Claims priority, application Fed. Rep. of Germany, May 5, 1979, 2927170
Int. Cl.³ D06M *13/18;* C10M *3/22;* D06M *15/08*
U.S. Cl. 252—8.9 8 Claims

4,335,004
LUBRICATING COMPOSITIONS CONTAINING DIESTERS OF DIMERCAPTO ETHERS
Howard F. Efner, Bartlesville, Okla., assignor to Phillips Petroleum Company, Bartlesville, Okla.
Filed Jan. 11, 1980, Ser. No. 111,414
Int. Cl.³ C10M *1/38*
U.S. Cl. 252—48.6 8 Claims

4,335,005
LUBRICANT COMPOSITIONS CONTAINING METAL ANTIFATIGUE ADDITIVES
Eldon L. Armstrong, Mullica Hill, and Phillip S. Landis, Woodbury, both of N.J., assignors to Mobil Oil Corporation, New York, N.Y.
Filed Sep. 11, 1980, Ser. No. 186,095
Int. Cl.[3] C10M *1/10, 3/02, 7/02, 7/48*
U.S. Cl. 252—49.6 5 Claims

4,335,006
METHOD OF STABILIZING LUBRICATING FLUIDS
Baldev K. Bandlish, Middlebury; Frederick C. Loveless, Cheshire, and Walter Nudenberg, Newtown, all of Conn., assignors to Uniroyal, Inc., New York, N.Y.
Continuation of Ser. No. 43,995, May 31, 1979, abandoned. This application Oct. 6, 1980, Ser. No. 194,326
Int. Cl.[3] C10M *1/10, 1/54*
U.S. Cl. 252—49.7 16 Claims

4,335,007
SOAP BAR
Dovie A. Owens, Rte. 2, Box 460, Fulton, Miss. 38843
Filed Mar. 4, 1981, Ser. No. 240,543
Int. Cl.[3] C11D *17/00, 17/04*
U.S. Cl. 252—92 1 Claim

4,335,008
PROCESS FOR AUGMENTING OR ENHANCING THE AROMA OF DETERGENTS USING CYCLOHEXYL PHENETHYLETHER
Jacob Kiwala, Brooklyn, N.Y.; Richard J. Tokarzewski, Keyport, N.J.; Frederick L. Schmitt, Holmdel, N.J., and Mark A. Sprecker, Sea Bright, N.J., assignors to International Flavors & Fragrances Inc., New York, N.Y.
Division of Ser. No. 192,238, Sep. 30, 1980, Pat. No. 4,306,096. This application May 28, 1981, Ser. No. 267,900
Int. Cl.[3] C11D *3/50*
U.S. Cl. 252—174.11 1 Claim

4,335,009
MIXTURE OF ALIPHATIC C_{10} BRANCHED OLEFIN EPOXIDES AND USE THEREOF IN AUGMENTING OR ENHANCING THE AROMA OF PERFUMES AND/OR ARTICLES
Richard M. Boden, Monmouth Beach; Lambert Dekker, Wyckoff; Frederick L. Schmitt, Holmdel, all of N.J., and Augustinus G. Van Loveren, Rye, N.Y., assignors to International Flavors & Fragrances Inc., New York, N.Y.
Continuation-in-part of Ser. No. 160,788, Jun. 19, 1980, Pat. No. 4,287,084. This application Oct. 9, 1980, Ser. No. 195,630
Int. Cl.[3] C11D *3/395, 3/39, 7/54*
U.S. Cl. 252—187.27 2 Claims

4,335,010
PREPARATION OF MUCONIC ACID MONONITRILES AND COPPER(II)-AMMONIA REAGENT THEREFOR
Timothy R. Demmin, Randolph, and Milorad M. Rogic, Whippany, both of N.J., assignors to Allied Corporation, Morristown, N.J.
Division of Ser. No. 74,442, Sep. 11, 1979, Pat. No. 4,277,419, which is a continuation-in-part of Ser. No. 942,507, Sep. 15, 1978, abandoned. This application Feb. 2, 1981, Ser. No. 230,761
Int. Cl.[3] C01G *3/14;* C07C *120/00*
U.S. Cl. 252—189 13 Claims

4,335,011
CYCLOHEXYL-DIOXANE LIQUID CRYSTALLINE COMPOUNDS
Nicholas L. Sethofer, San Jose, Calif., assignor to Timex Corporation, Waterbury, Conn.
Division of Ser. No. 135,381, Mar. 28, 1980, Pat. No. 4,298,528. This application May 29, 1981, Ser. No. 268,464
Int. Cl.[3] C09K *3/34;* G02F *1/13;* C07D *319/04*
U.S. Cl. 252—299.1 7 Claims

4,335,012
5-SUBSTITUTED-2-(4-CYANOPHENYL)-1,3-DIOXANES
Howard Sorkin, Berkeley Heights, N.J., assignor to Timex Corporation, Waterbury, Conn.
Division of Ser. No. 136,855, Apr. 3, 1980, Pat. No. 4,322,354, which is a continuation-in-part of Ser. No. 17,635, Mar. 5, 1979, abandoned. This application Jul. 6, 1981, Ser. No. 280,762
Int. Cl.[3] C09K *3/34;* C02F *1/13*
U.S. Cl. 252—299.61 3 Claims

4,335,013
SOLVENTS USEFUL IN PRESSURE-SENSITIVE MARK-RECORDING SYSTEMS
Pierre J. Aliart, Brussels, and Claude A. Guillaume, Jodoigne, both of Belgium, assignors to Monsanto Company, St. Louis, Mo.
Filed Aug. 18, 1980, Ser. No. 179,414
Claims priority, application United Kingdom, Aug. 24, 1979, 7929565
Int. Cl.[3] B01F *1/00*
U.S. Cl. 252—364 11 Claims

4,335,014
PROCESS FOR IMPROVING THE ACTIVITY OF SUPPORTED SILVER CATALYSTS
Josef Alfranseder, Marktl; Sigmund Mayer, Burgkirchen; Siegfried Rebsdat, Burg; Josef Riedl, Burgkirchen, and Iwo Schaffelhofer, Burghausen, all of Fed. Rep. of Germany, assignors to Hoechst Aktiengesellschaft, Frankfurt, Fed. Rep. of Germany
Filed Sep. 17, 1980, Ser. No. 188,237
Claims priority, application Fed. Rep. of Germany, Sep. 21, 1979, 2938245
Int. Cl.[3] B01J *23/96, 23/48*
U.S. Cl. 252—412 2 Claims

4,335,015
CATALYST COMPONENT FOR POLYMERIZATION OF ALPHA-OLEFINS AND METHOD OF USING IT
Masafumi Imai, Ooi; Hiroshi Ueno, Namekawa, and Naomi Inaba, Ooi, all of Japan, assignors to Toa Nenryo Kogyo Kabushiki Kaisha, Tokyo, Japan
Filed Jun. 23, 1980, Ser. No. 161,978
Claims priority, application Japan, Jul. 25, 1979, 54/93681
Int. Cl.[3] C08F *4/64*
U.S. Cl. 252—429 B 26 Claims

4,335,016
CATALYST AND METHOD
Robert A. Dombro, Clinton, Iowa, assignor to Chemplex Company, Rolling Meadows, Ill.
Filed Feb. 23, 1981, Ser. No. 237,297
Int. Cl.[3] C08F *4/06, 4/16*
U.S. Cl. 252—429 B 14 Claims

4,335,017
COMPOSITE MATERIALS COMPRISING DEFORMABLE XEROGEL WITHIN THE PORES OF PARTICULATE RIGID SUPPORTS USEFUL IN CHROMATOGRAPHY
Brynley J. Miles, Cirencester, and Alan Rosevear, Faringdon, both of England, assignors to United Kingdom Atomic Energy Authority, Oxfordshire, England
Continuation-in-part of Ser. No. 750,706, Dec. 15, 1976, abandoned. This application Dec. 8, 1977, Ser. No. 858,798
Claims priority, application United Kingdom, Dec. 15, 1975, 51345/75; Dec. 15, 1976, 52432/76; Dec. 15, 1976, 52433/76
Int. Cl.³ B01J *20/32, 20/26, 20/14;* B01D *15/08*
U.S. Cl. 252—430 40 Claims

4,335,018
CATALYST FOR THE PRODUCTION OF MALEIC ANHYDRIDE
Gerhard Franz; Franz Nierlich, and Hans-Josef Ratajczak, all of Marl, Fed. Rep. of Germany, assignors to Chemische Werke Huels Aktiengesellschaft, Marl, Fed. Rep. of Germany
Division of Ser. No. 114,448, Jan. 22, 1980, Pat. No. 4,268,448. This application Oct. 30, 1980, Ser. No. 202,281
Claims priority, application Fed. Rep. of Germany, Jan. 26, 1979, 2902986
Int. Cl.³ B01J *27/14, 29/00*
U.S. Cl. 252—435 13 Claims

4,335,019
PREPARATION OF NATURAL FERRIERITE HYDROCRACKING CATALYST AND HYDROCARBON CONVERSION WITH CATALYST
Emmerson Bowes, Woodstown, and Bruce P. Pelrine, Trenton, both of N.J., assignors to Mobil Oil Corporation, New York, N.Y.
Filed Jan. 13, 1981, Ser. No. 225,079
Int. Cl.³ B01J *29/30, 37/00*
U.S. Cl. 252—450 12 Claims

4,335,020
METHOD OF PREPARATION OF COMPOSITE ZEOLITE CATALYSTS
Pochen Chu, West Deptford, N.J.; Francis G. Dwyer, West Chester, and Albin Huss, Chadds Ford, both of Pa., assignors to Mobil Oil Corporation, New York, N.Y.
Filed Jan. 6, 1981, Ser. No. 222,848
Int. Cl.³ B01J *29/06, 29/28*
U.S. Cl. 252—455 Z 23 Claims

4,335,021
CATALYST REGENERATION
Dwight L. McKay, Bartlesville, Okla., assignor to Phillips Petroleum Company, Bartlesville, Okla.
Filed Feb. 4, 1980, Ser. No. 117,927
Int. Cl.³ B01J *21/12, 29/16, 29/38*
U.S. Cl. 252—455 R 5 Claims

4,335,022
MODIFIED SILICA COMPOSITION
Lynn H. Slaugh, Houston, Tex., assignor to Shell Oil Company, Houston, Tex.
Continuation-in-part of Ser. No. 61,205, Jul. 27, 1979, abandoned. This application Dec. 22, 1980, Ser. No. 219,279
Int. Cl.³ B01J *21/12*
U.S. Cl. 252—455 R 12 Claims

4,335,023
MONOLITHIC CATALYST MEMBER AND SUPPORT THEREFOR
Joseph C. Dettling, Jackson; John J. Mooney, Wyckoff; Robert M. Skomoroski, Paterson, and Saul G. Hindin, Mendham, all of N.J., assignors to Engelhard Corporation, Iselin, N.J.
Filed Jan. 24, 1980, Ser. No. 114,807
Int. Cl.³ B01J *21/04, 23/40, 35/04*
U.S. Cl. 252—466 PT 32 Claims

4,335,024
LIQUID DETERGENT COMPOSITIONS COMPRISED OF MIXTURES OF ALKYL POLYGLYCOL ETHERS AND QUATERNARY AMMONIUM COMPOUNDS
Manfred Hennemann, Hilden; Albrecht Loehr, Eggerscheid; Peter Krings, Krefeld, and Rudolf Weber, Düsseldorf, all of Fed. Rep. of Germany, assignors to Henkel Kommanditgesellschaft auf Aktien, Düsseldorf-Holthausen, Fed. Rep. of Germany
Continuation of Ser. No. 32,462, Apr. 23, 1979, abandoned. This application Mar. 13, 1981, Ser. No. 243,431
Claims priority, application Fed. Rep. of Germany, Jun. 1, 1978, 2824024
Int. Cl.³ C11D *1/835, 1/62;* D06M *13/46*
U.S. Cl. 252—545 11 Claims

4,335,025
PROCESS FOR THE PREPARATION OF SYNTHETIC DETERGENT BARS, AND PRODUCTS PRODUCED THEREBY
Graham Barker, Fair Lawn; Leopold Safrin, E. Orange, and Martin J. Barabash, Montvale, all of N.J., assignors to Witco Chemical Corporation, New York, N.Y.
Continuation-in-part of Ser. No. 122,538, Feb. 19, 1980, abandoned. This application Mar. 3, 1981, Ser. No. 239,931
Int. Cl.³ C11D *1/04, 1/12, 11/04, 17/00*
U.S. Cl. 252—550 13 Claims

4,335,026
PRESSURE-SENSITIVE ADHESIVE COMPOSITIONS HAVING HIGH SHEAR AND LOW PEEL RESISTANCE
Ivan J. Balinth, Cranford, N.J., assignor to Johnson & Johnson Products Inc., New Brunswick, N.J.
Filed Mar. 27, 1981, Ser. No. 248,595
Int. Cl.³ C08L *7/02*
U.S. Cl. 524—271 14 Claims

4,335,027
AIR-DRIABLE ALKYD RESINS AND PROCESS FOR THEIR PREPARATION
George E. Cremeans, Groveport, and Richard A. Markle, Columbus, both of Ohio, assignors to Battelle Development Corporation, Columbus, Ohio
Filed Apr. 27, 1981, Ser. No. 257,532
Int. Cl.³ C09D *3/28, 3/58, 3/64*
U.S. Cl. 528—281 26 Claims

4,335,028
CATHODIC ELECTROCOATING COMPOSITIONS CONTAINING BASE-FUNCTIONAL GRAFT POLYMERS HAVING EPOXY RESIN BACKBONES, AND SUBSTRATES COATED THEREWITH
Vincent W. Ting, Boulder, Colo.; James T. K. Woo, Medina, and David A. Borovicka, Sr., Parma, both of Ohio, assignors to SCM Corporation, New York, N.Y.
Filed Sep. 22, 1980, Ser. No. 188,996
Int. Cl.³ C08L *63/00*
U.S. Cl. 524—504 32 Claims

4,335,029
AQUEOUS POLYURETHANE COMPOSITIONS
Shmuel Dabi, Fair Lawn; Peter Loewrigkeit, Wyckoff, and Kenneth A. Van Dyk, Stockholm, all of N.J., assignors to Witco Chemical Corporation, New York, N.Y.
Filed Dec. 15, 1980, Ser. No. 216,721
Int. Cl.³ C08L *75/06*
U.S. Cl. 524—589 18 Claims

4,335,030
AQUEOUS DISPERSION OF FLUOROPOLYMERS IN COMBINATION WITH EPOXY-TYPE FILM FORMERS
Thomas P. Concannon, Newtown Square, Pa., assignor to E. I. Du Pont de Nemours and Company, Wilmington, Del.
Filed Jun. 30, 1981, Ser. No. 279,162
Int. Cl.³ C08K *5/17*
U.S. Cl. 523—408 31 Claims

4,335,031
ELECTROCOATING COMPOSITION WITH POLYHYDROXYAMINE AND POLYBUTADIENE
Isidor Hazan, Clementon, N.J., assignor to E. I. Du Pont de Nemours and Company, Wilmington, Del.
Continuation-in-part of Ser. No. 106,254, Dec. 21, 1979, abandoned. This application Dec. 29, 1980, Ser. No. 220,953
Int. Cl.³ C08L *29/02, 39/00*
U.S. Cl. 524—504 11 Claims

4,335,032
POLYCARBONATE RESIN IMPACT MODIFIED WITH POLYOLEFINS AND CONTAINING POLYORGANOSILOXANE FLUIDS
Niles R. Rosenquist, Evansville, Ind., assignor to General Electric Company, Mt. Vernon, Ind.
Filed Dec. 31, 1980, Ser. No. 221,934
Int. Cl.³ C08L *69/00*
U.S. Cl. 524—269 9 Claims

4,335,033
ERASER AND PROCESS FOR ITS MANUFACTURE
Werner Handl, Altdorf, Fed. Rep. of Germany, assignor to J. S. Staedtler, Nuremberg, Fed. Rep. of Germany
Filed Aug. 16, 1979, Ser. No. 67,001
Claims priority, application Fed. Rep. of Germany, Aug. 25, 1978, 2837159
Int. Cl.³ C08K *5/10*
U.S. Cl. 524—525 6 Claims

4,335,034
THERMOPLASTIC COMPOSITIONS AND AUTOMOTIVE CARPETING BACKED THEREWITH
Joseph L. Zuckerman, Livingston, and John W. Bzik, North Haledon, both of N.J., assignors to J. P. Stevens & Co., Inc., New York, N.Y.
Division of Ser. No. 970,693, Dec. 18, 1978, Pat. No. 4,242,395. This application May 12, 1980, Ser. No. 149,091
Int. Cl.³ C08K *3/24, 3/26, 5/01;* C08L *9/00*
U.S. Cl. 524—423 6 Claims

4,335,035
SILICONE RUBBER COMPOSITION
Masayuki Hatanaka, Ouramachi, and Atsushi Kurita, Ohta, both of Japan, assignors to Toshiba Silicone Co., Ltd., Tokyo, Japan
Filed Jul. 30, 1980, Ser. No. 173,523
Claims priority, application Japan, Sep. 11, 1979, 54-116499
Int. Cl.³ C08L *83/06;* C08G *77/12*
U.S. Cl. 523—212 12 Claims

4,335,036
PLASTICIZED POLYVINYL BUTYRAL EMPLOYING PROPYLENE OXIDE OLIGOMERS
Peter A. Fowell, Chadds Ford, Pa., assignor to E. I. Du Pont de Nemours and Company, Wilmington, Del.
Filed May 30, 1980, Ser. No. 154,852
Int. Cl.³ C08F *16/34, 16/06;* C08K *5/05;* C03C *27/12*
U.S. Cl. 524—376 8 Claims

4,335,037
BLEND OF STYRENE-MALEIC ANHYDRIDE AND HIGH IMPACT POLYSTYRENE
Frank E. Lordi, West Chester, and Peter S. Francis, Rose Valley, both of Pa., assignors to Atlantic Richfield Company, Los Angeles, Calif.
Filed Mar. 26, 1981, Ser. No. 247,689
Int. Cl.³ C08L *51/00;* C08K *3/40*
U.S. Cl. 524—504 2 Claims

4,335,038
POLYCARBONATE CONTAINING A METAL PERFLUOROBORATE AND AN ORGANOSILANE AS IGNITION DEPRESSANTS
Lowell S. Thomas, Midland, Mich., assignor to The Dow Chemical Company, Midland, Mich.
Filed Sep. 26, 1980, Ser. No. 191,207
Int. Cl.³ C08K *3/38, 5/54*
U.S. Cl. 524—188 4 Claims

4,335,039
THERMALLY STABLE POLYCARBONATE COMPOSITIONS
Ronald L. Markezich, Mt. Vernon, Ind., assignor to General Electric Company, Mt. Vernon, Ind.
Filed Nov. 2, 1978, Ser. No. 957,427
Int. Cl.³ C08K *5/15, 5/52*
U.S. Cl. 524—108 7 Claims

4,335,040
THERAPEUTIC PRODUCT AND METHOD
William S. Livingston, Woodland Hills, Calif., assignor to Livingston Labs., Van Nuys, Calif.
Continuation of Ser. No. 583,724, Jun. 4, 1975, abandoned, which is a continuation-in-part of Ser. No. 602,434, Oct. 6, 1966, Pat. No. 3,526,697, which is a continuation-in-part of Ser. No. 207,146, Jun. 26, 1962, abandoned, which is a continuation-in-part of Ser. No. 660,559, May 21, 1957, abandoned, and Ser. No. 655,320, Apr. 26, 1957, abandoned, which is a continuation-in-part of Ser. No. 623,711, Nov. 21, 1956, abandoned, which is a continuation-in-part of Ser. No. 256,334, Nov. 14, 1951, abandoned, which is a continuation-in-part of Ser. No. 127,799, Nov. 16, 1949, abandoned. This application Mar. 7, 1977, Ser. No. 775,225
Int. Cl.³ A61K *35/12, 35/50;* C07G *7/00*
U.S. Cl. 260—112 R 10 Claims

4,335,041
HIGH SENSITIVITY ASSAYS FOR ANGIOTENSIN CONVERTING ENZYME
James W. Ryan, and Alfred Chung, both of Miami, Fla., assignors to Ventrex Laboratories, Inc., Portland, Me.
Division of Ser. No. 854,538, Nov. 25, 1977. This application Sep. 26, 1980, Ser. No. 191,029
Int. Cl.³ C07C *103/52*
U.S. Cl. 260—112.5 R 3 Claims

4,335,042
PROCESS TO PRODUCE IMIDAZOBENZODIAZEPINE INTERMEDIATES
Henry J. Niemczyk, Wayne, N.J., assignor to Hoffmann-La Roche Inc., Nutley, N.J.
Filed Apr. 21, 1980, Ser. No. 142,581
Int. Cl.[3] C07D *243/16, 401/04*
U.S. Cl. 260—239 BD 3 Claims

4,335,043
SUBSTITUTED N-METHYLENE DERIVATIVES OF THIENAMYCIN
Burton G. Christensen, Metuchen; William J. Leanza, Berkeley Heights, and Kenneth J. Wildonger, Somerville, all of N.J., assignors to Merck & Co., Inc., Rahway, N.J.
Division of Ser. No. 852,425, Nov. 17, 1977, Pat. No. 4,194,047, which is a continuation-in-part of Ser. No. 733,654, Oct. 18, 1976, abandoned, which is a continuation-in-part of Ser. No. 676,261, Apr. 12, 1976, abandoned, which is a continuation-in-part of Ser. No. 634,296, Nov. 21, 1975, abandoned. This application Oct. 11, 1979, Ser. No. 84,013
Int. Cl.[3] C07D *487/04*; A61K *31/40*
U.S. Cl. 260—245.2 T 3 Claims

4,335,044
PLANT GROWTH REGULATING PERFLUOROACYL ARYLTHIOUREIDO ISOINDOLEDIONES
Loren W. Hedrich, Orange, Tex., assignor to Gulf Oil Corporation, Pittsburgh, Pa.
Division of Ser. No. 175,000, Aug. 4, 1980, Pat. No. 4,289,527. This application May 11, 1981, Ser. No. 262,279
Int. Cl.[3] C07D *209/48*
U.S. Cl. 548—475 24 Claims

4,335,045
PREPARATION OF N-ALKENYL-2-AMINOMETHYL-PYRROLIDINES
Eric-Alain Denzler, Zurich, Switzerland, assignor to Sachim S.A., Geneva, Switzerland
Filed Mar. 24, 1976, Ser. No. 669,967
Claims priority, application Switzerland, Dec. 19, 1975, 16485/75
Int. Cl.[3] C07D *207/09*
U.S. Cl. 548—566 4 Claims

4,335,046
POLYESTER COMPOSITIONS, SHAPED ARTICLES OBTAINED FROM THEM AND PROCESSES FOR PREPARING THEM
Patrick J. Horner, Welwyn Garden City, England, assignor to Imperial Chemical Industries Limited, London, England
Division of Ser. No. 43,424, May 29, 1979, Pat. No. 4,284,756. This application Apr. 23, 1981, Ser. No. 257,227
Claims priority, application United Kingdom, Jun. 9, 1978, 26606/78
Int. Cl.[3] C07D *311/86*
U.S. Cl. 549—392 1 Claim

4,335,047
PREPARATION OF CYCLIC ACETALS OF TRANS-4-CHLORO-3-METHYL-BUT-2-EN-1-AL, AND PREPARATION OF TRANS-3-METHYL-BUT-2-ENE-1,4-DIAL-1-MONOACETALS
Hagen Jaedicke, Ludwigshafen, and Joachim Paust, Neuhofen, both of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Fed. Rep. of Germany
Filed Apr. 8, 1980, Ser. No. 138,411
Claims priority, application Fed. Rep. of Germany, Apr. 28, 1979, 2917413
Int. Cl.[3] C07D *319/04*
U.S. Cl. 549—369 6 Claims

4,335,048
5-(2-HYDROXYPROPOXY)-8-PROPYL-4H-1-BENZOPYRAN-4-ONE-2-CARBOXYLIC ACID
Hugh Cairns, Loughborough; Richard Hazard, Cropston; John King, and Thomas B. Lee, both of Loughborough, all of England, assignors to Fisons Limited, London, England
Continuation of Ser. No. 594,836, Jul. 10, 1975, abandoned. This application Feb. 19, 1980, Ser. No. 122,284
Claims priority, application United Kingdom, Jul. 10, 1974, 30647/74
Int. Cl.[3] C07D *311/24*
U.S. Cl. 549—402 2 Claims

4,335,049
PROCESS FOR PRODUCING 5-METHYLFURFURAL
Kazuhiko Hamada; Goufu Suzukamo, both of Ibaraki, and Koichi Fujisawa, Toyonaka, all of Japan, assignors to Sumitomo Chemical Company, Limited, Osaka, Japan
Filed Jun. 30, 1981, Ser. No. 279,004
Claims priority, application Japan, Jul. 16, 1980, 55-98086; Mar. 19, 1981, 56-41111; Mar. 20, 1981, 56-41024
Int. Cl.[3] C07D *307/46*
U.S. Cl. 549—483 6 Claims

4,335,050
PROCESS FOR THE PREPARATION OF THE 5- AND 6-NITRO DERIVATIVES OF 1,2,3,4-TETRAHYDRO-ANTHRAQUINONE FROM 1,2,3,4,4A,9A-HEXAHYDRO-9,10-ANTHRACENE-DIONE
Serge Delavarenne, Francheville le Haut, and Pierre Tellier, Sainte Foy les Lyon, both of France, assignors to PCUK Produits Chimiques Ugine Kuhlmann, Courbevoie, France
Filed Sep. 28, 1979, Ser. No. 80,030
Claims priority, application France, Oct. 17, 1978, 78 29507
Int. Cl.[3] C07C *50/18*
U.S. Cl. 260—369 7 Claims

4,335,051
PROCESS FOR THE PREPARATION OF DIMETHYL CARBONATE
Hans-Josef Buysch; Heinrich Krimm, both of Krefeld, and Siegfried Böhm, Cologne, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany
Filed May 30, 1980, Ser. No. 155,036
Claims priority, application Fed. Rep. of Germany, Jun. 22, 1979, 2925209
Int. Cl.[3] C07C *68/00*
U.S. Cl. 260—463 8 Claims

4,335,052
METHOD OF PREPARING SUBSTITUTED BENZALDEHYDES
Günther Bernhardt, St. Augustin; Egon-Norbert Petersen, Neunkirchen, and Gerhard Daum, Cologne, all of Fed. Rep. of Germany, assignors to Dynamit Nobel Aktiengesellschaft, Troisdorf, Fed. Rep. of Germany
Filed Nov. 24, 1980, Ser. No. 210,469
Claims priority, application Fed. Rep. of Germany, Nov. 29, 1979, 2948058
Int. Cl.³ C07C *121/76, 45/28*
U.S. Cl. 260—465 R 13 Claims

4,335,053
N-CYANOBENZYL HALOACETAMIDES
Francis H. Walker, Mill Valley, Calif., assignor to Stauffer Chemical Company, Westport, Conn.
Division of Ser. No. 73,392, Sep. 7, 1979, Pat. No. 4,288,384. This application Apr. 22, 1981, Ser. No. 256,321
Int. Cl.³ C07C *121/78*
U.S. Cl. 260—465 D 6 Claims

4,335,054
PROCESS FOR THE PREPARATION OF ALKENYLBENZENECARBOXYLIC ACID DERIVATIVES AND ALKENYLNAPHTHALENECARBOXYLIC ACID DERIVATIVES
Hans-Ulrich Blaser, Ettingen, Switzerland; Dieter Reinehr, Kandern, Fed. Rep. of Germany, and Alwyn Spencer, Basel, Switzerland, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.
Filed May 8, 1981, Ser. No. 262,000
Claims priority, application Switzerland, May 13, 1980, 3732/80
Int. Cl.³ C07C *121/70, 49/217, 69/618, 103/22*
U.S. Cl. 260—465 G 12 Claims

4,335,055
PROCESS FOR THE PREPARATION OF ALKENYLBENZENE DERIVATIVES OR ALKENYLNAPHTHALENE DERIVATIVES
Hans-Ulrich Blaser, Ettingen, Switzerland; Dieter Reinehr, Kandern, Fed. Rep. of Germany, and Alwyn Spencer, Basel, Switzerland, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.
Filed May 8, 1981, Ser. No. 262,002
Claims priority, application Switzerland, May 13, 1980, 3731/80
Int. Cl.³ C07C *121/70, 15/52, 25/24, 49/217*
U.S. Cl. 260—465 K 13 Claims

4,335,056
PROCESSING ACRYLONITRILE WASTE GAS
James L. Callahan, Wooster; Wilfrid G. Shaw, Lyndhurst, and David B. Terrill, Bedford, all of Ohio, assignors to Standard Oil Company, Cleveland, Ohio
Filed Jan. 5, 1981, Ser. No. 222,448
Int. Cl.³ C07C *120/14, 51/215, 45/35*
U.S. Cl. 260—465.3 5 Claims

4,335,057
4-(2',2,2'-TRIHALOGENOETHYL)-CYCLOBUTANE-1-SULFONIC ACID SALTS WITH OPTICALLY ACTIVE BASES
John G. Dingwall, Sale, England; Hans Greuter, Cos Cob, Conn.; Pierre Martin, Rheinfelden, Switzerland; Peter Ackermann, Reinach, Switzerland, and Laurenz Gsell, Basel, Switzerland, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.
Division of Ser. No. 103,983, Dec. 17, 1979, Pat. No. 4,299,967. This application Dec. 24, 1980, Ser. No. 219,803
Claims priority, application Switzerland, Dec. 15, 1978, 12784/73
Int. Cl.³ C07C *143/20*
U.S. Cl. 260—501.19 3 Claims

4,335,058
PREPARATION OF CARBOXYLIC ACID ANHYDRIDES
Nabil Rizkalla, River Vale, N.J., assignor to Halcon Research and Development Corp., New York, N.Y.
Continuation-in-part of Ser. No. 219,788, Dec. 24, 1980. This application May 28, 1981, Ser. No. 267,962
Int. Cl.³ C07C *51/56, 51/54, 53/12*
U.S. Cl. 260—546 4 Claims

4,335,059
PREPARATION OF CARBOXYLIC ACID ANHYDRIDES
Nabil Rizkalla, River Vale, N.J., assignor to Halcon Research and Development Corp., New York, N.Y.
Filed Dec. 24, 1980, Ser. No. 219,788
Int. Cl.³ C07C *51/56, 51/54, 53/12*
U.S. Cl. 260—549 4 Claims

4,335,060
MULTI-FUEL VAPOR CHARGE CARBURETION SYSTEM AND DEVICE THEREFOR
Adolfo P. Alegre, No. 119 Bignay St., Project II, Quezon City; Armando E. Guidote, Antipolo, Rizal, and Alfonso G. Puyat, No. 7 Caimito St., Forbes Park, Makati, Metro Manila, all of Philippines
Filed Mar. 24, 1980, Ser. No. 132,988
Claims priority, application Philippines, Sep. 7, 1979, 23009; Oct. 18, 1979, 23189
Int. Cl.³ F02M *17/22*
U.S. Cl. 261—23 R 2 Claims

4,335,061
AUXILIARY FUEL SUPPLY DEVICE FOR INTERNAL COMBUSTION ENGINES
Hiroto Kobayashi, Kamakura, Japan, assignor to Walbro Far East, Inc., Kawasaki, Japan
Filed Jun. 3, 1980, Ser. No. 156,167
Claims priority, application Japan, Jun. 18, 1979, 54-082180[U]
Int. Cl.³ F02M *1/16*
U.S. Cl. 261—44 G 3 Claims

4,335,062
CARBURETOR WITH ROTARY THROTTLE
Hiroto Kobayashi, Kamakura, Japan, assignor to Walbro Far East, Inc., Kawasaki, Japan
Filed Jun. 3, 1980, Ser. No. 156,179
Claims priority, application Japan, Jun. 6, 1979, 54-075883[U]
Int. Cl.³ F02M *9/08*
U.S. Cl. 261—44 G 1 Claim

4,335,063
METHOD AND APPARATUS FOR PRESSURE CONTROL IN A PRESS
Dieter Kolb; Eugen Kopp, both of Stuttgart, and Manfred Müller-Sybrichs, Shöckingen, all of Fed. Rep. of Germany, assignors to Werner & Pfleiderer, Stuttgart, Fed. Rep. of Germany
Filed Jun. 11, 1979, Ser. No. 47,780
Claims priority, application Fed. Rep. of Germany, Jun. 13, 1978, 2825795
Int. Cl.³ C06B *21/00*; B29C *3/06*
U.S. Cl. 264—3 B 5 Claims

4,335,064
PROCESS FOR PACKING ELECTROLYSIS CELLS FOR THE PRODUCTION OF ALUMINUM
Benoit Sulmont, Paralia Distomon, Greece, and Gerard Hudault, St. Jean de Maurienne, France, assignors to Aluminium Pechiney, Lyons, France
PCT No. PCT/FR79/00101, § 371 Date Jul. 7, 1980, § 102(e) Date Jun. 11, 1980, PCT Pub. No. WO80/00978, PCT Pub. Date May 15, 1980
PCT Filed Nov. 7, 1979, Ser. No. 206,540
Claims priority, application France, Nov. 7, 1978, 78 32055
Int. Cl.³ F27D *1/16*
U.S. Cl. 264—30 6 Claims

4,335,065
METHOD AND APPARATUS FOR PRODUCING MOULDINGS OF CEMENT MORTAR
Shigeo Ando, 272, Suehirocho 5 chome, Choshi-shi, Chiba 288, Japan
Filed Jul. 9, 1980, Ser. No. 166,919
Claims priority, application Japan, Dec. 17, 1979, 54-162671; Mar. 24, 1980, 55-036180; Mar. 26, 1980, 55-037381; Apr. 8, 1980, 55-045163
Int. Cl.³ B28B *1/26*
U.S. Cl. 264—87 17 Claims

4,335,066
METHOD OF FORMING A FIBROUS WEB WITH HIGH FIBER THROUGHPUT SCREENING
James H. Dinius, Neenah, Wis., assignor to Kimberly-Clark Corporation, Neenah, Wis.
Continuation-in-part of Ser. No. 106,142, Dec. 21, 1979, abandoned. This application May 26, 1981, Ser. No. 266,753
Int. Cl.³ B29C *13/00*
U.S. Cl. 264—121 9 Claims

4,335,067
PRODUCING REPLICAS OF BODY PARTS
George Castanis, and Thaddeus T. Castanis, both of 444 6th Ave., New York, N.Y. 10011
Filed May 13, 1981, Ser. No. 263,349
Int. Cl.³ B29C *1/02*
U.S. Cl. 264—222 7 Claims

4,335,068
METHOD OF MOULDING CONTAINERS FROM AT LEAST TWO DIFFERENT PLASTIC MATERIALS, MACHINE FOR CARRYING OUT THIS METHOD AND CONTAINERS OBTAINED THEREBY
Andre Hemery, Les Andelys, France, assignor to Allibert Exploitation, France
Filed Dec. 18, 1978, Ser. No. 970,181
Claims priority, application France, Dec. 23, 1977, 77 39069
Int. Cl.³ B29F *1/06, 1/12*
U.S. Cl. 264—245 6 Claims

4,335,069
FLAT SHEET PROCESS FOR PRODUCTION OF POLYOLEFIN SHRINK FILM
Stanley B. Levy, Wilmington, Del., assignor to E. I. Du Pont de Nemours and Company, Wilmington, Del.
Filed Jun. 25, 1981, Ser. No. 278,434
Int. Cl.³ B29C *17/02*
U.S. Cl. 264—290.2 5 Claims

4,335,070
METHOD OF MANUFACTURING A RETICULAR WEB HAVING REINFORCED SELVAGES
Masahide Yazawa; Hiroshi Yazawa, both of Kunitachi; Haruhisa Tani, and Kazuhiko Kurihara, both of Tokyo, all of Japan, assignors to Nippon Petrochemicals Co., Ltd. and Polymer Processing Research Institute, Ltd., both of, Japan
Filed Jan. 7, 1981, Ser. No. 222,972
Claims priority, application Japan, Jan. 12, 1980, 55-2315
Int. Cl.³ B29D *00/00, 7/14*
U.S. Cl. 264—555 9 Claims

4,335,071
PRESSURE-VACUUM PURGE CYCLE
David C. Thornton, Erie, Pa., assignor to American Sterilizer Company, Erie, Pa.
Filed Oct. 6, 1980, Ser. No. 194,690
Int. Cl.³ A61L *2/06*
U.S. Cl. 422—26 2 Claims

4,335,072
OVERHEAD CORROSION SIMULATOR
Jack W. Barnett, and Roy D. Sawyer, both of Missouri City, Tex., assignors to Nalco Chemical Company, Oak Brook, Ill.
Filed Aug. 17, 1981, Ser. No. 293,620
Int. Cl.³ G01N *17/00*; C23F *14/02*
U.S. Cl. 422—53 10 Claims

4,335,073
NOX CONVERSION EFFICIENCY DETECTOR
Loran D. Sherwood, Walled Lake, Mich.; Jack J. Keegan, La Habra, and Stephen A. Gniewek, Glendora, both of Calif., assignors to Beckman Instruments, Inc., Fullerton, Calif.
Filed May 4, 1981, Ser. No. 260,238
Int. Cl.³ G01N *21/76*
U.S. Cl. 422—83 23 Claims

4,335,074
LIQUID AND VAPOR-TIGHT VESSEL FOR PERFORMING DECOMPOSITION REACTIONS
Bedrich Bernas, 13 Soroka St., Haifa, Israel
Continuation-in-part of Ser. No. 960,539, Nov. 14, 1978, abandoned. This application Dec. 23, 1980, Ser. No. 219,492
Claims priority, application Israel, Nov. 14, 1977, 53370
Int. Cl.³ B01L *3/00*
U.S. Cl. 422—102 7 Claims

4,335,075
DOOR SEAL FOR STERILIZER
Edward M. Kackos, Belmar, N.J., assignor to Vernitron Corporation, Lake Success, N.Y.
Filed Dec. 22, 1980, Ser. No. 218,934
Int. Cl.³ A61L *2/06, 2/26*; B65D *53/02*
U.S. Cl. 422—112 4 Claims

4,335,076

CONVERTER FOR CONVERTING SULFUR DIOXIDE TO SULFUR TRIOXIDE

John McFarland, Campbellville, Canada, assignor to Chemetics International Ltd., Montreal, Canada

Filed Jan. 12, 1981, Ser. No. 224,154
Claims priority, application Canada, Sep. 19, 1980, 360774
Int. Cl.[3] B01D *50/00*
U.S. Cl. 422—171 26 Claims

4,335,077

CATALYZER FOR DETOXIFYING EXHAUST GASES FROM INTERNAL COMBUSTION ENGINES

Andres Santiago, and Enrique Santiago, both of Augsburg, Fed. Rep. of Germany, assignors to Zeuna-Staerker KG, Augsburg, Fed. Rep. of Germany

Filed Mar. 19, 1973, Ser. No. 342,540
Claims priority, application Fed. Rep. of Germany, Jan. 26, 1973, 2303789
Int. Cl.[3] F01N *3/15;* B01J *8/06*
U.S. Cl. 422—179 8 Claims

4,335,078

CATALYTIC REACTOR FOR AUTOMOTIVE EXHAUST LINE

Takashi Ushijima, Tokyo; Hajime Kawasaki, Yokohama; Takayuki Yamazaki, Tokyo, and Yoshio Iwasa, Nagareyama, all of Japan, assignors to Nissan Motor Company, Limited, Yokohama, Japan

Continuation of Ser. No. 919,791, Jun. 28, 1978, abandoned. This application Feb. 22, 1980, Ser. No. 123,572
Claims priority, application Japan, Sep. 13, 1977, 52-122411[U]; Oct. 11, 1977, 52-135155[U]
Int. Cl.[3] F01N *3/28;* B01J *35/04*
U.S. Cl. 422—179 5 Claims

4,335,079

APPARATUS FOR THE SULFONATION OR SULFATION OF ORGANIC LIQUIDS

John E. Vander Mey, 78 Winding Way, Stirling, N.J. 07980

Filed Oct. 20, 1980, Ser. No. 198,779
Int. Cl.[3] B01J *3/02, 10/02*
U.S. Cl. 422—194 15 Claims

4,335,080

APPARATUS FOR PRODUCING SELECTIVE PARTICLE SIZED OXIDE

Robert D. Davis, Costa Mesa, and Roy L. Blizzard, Mission Viejo, both of Calif., assignors to Thermo Electron Corporation, Waltham, Mass.

Continuation-in-part of Ser. No. 820,536, Aug. 1, 1977, abandoned. This application Jan. 7, 1980, Ser. No. 104,387
Int. Cl.[3] B01D *5/00*
U.S. Cl. 422—244 8 Claims

4,335,081

CRYSTAL GROWTH FURNACE WITH TRAP DOORS

Emanual M. Sachs, Watertown, and Brian H. Mackintosh, Lexington, both of Mass., assignors to Mobil Tyco Solar Energy Corporation, Waltham, Mass.

Continuation of Ser. No. 3,765, Jan. 15, 1979, abandoned. This application Feb. 9, 1981, Ser. No. 232,570
Int. Cl.[3] C30B *15/34*
U.S. Cl. 422—246 25 Claims

4,335,082

METHOD OF DECREASING THE ORGANIC SUBSTANCE CONTENT OF ALUM EARTH PRODUCTION CYCLE PERFORMED ACCORDING TO THE BAYER TECHNOLOGY

Jozsef Matyasi, Budapest; Ferenc Toth, Almasfuzito-felso; Laszlo Revesz, Almasfuzito-felso; Benjaminne Toth, Almasfuzito-felso; Miklos Schlegel, Tata; Jozsef Zoldi, Budapest; Janosne Losonczi, Tata; Lajos Szoke, Almasfuzito-felso, and Maria Orban nee Kelemen, Budapest, all of Hungary, assignors to Magyar Aluminiumipari Troszt, Budapest, Hungary

Filed Oct. 29, 1980, Ser. No. 201,722
Claims priority, application Hungary, Oct. 30, 1979, AA 940
Int. Cl.[3] C01F *7/06, 7/46*
U.S. Cl. 423—122 5 Claims

4,335,083

METHOD FOR LEACHING MAGNESIUM FROM MAGNESIUM HYDROXIDE-CONTAINING COMPOSITION

Robert F. Benson, St. Peterburg, Fla., assignor to Carey Canada Inc., Quebec, Canada

Filed Mar. 5, 1981, Ser. No. 240,712
Int. Cl.[3] C01F *5/20, 5/24*
U.S. Cl. 423—167 16 Claims

4,335,084

METHOD FOR REDUCING NO_x EMISSIONS FROM COMBUSTION PROCESSES

Thomas R. Brogan, Charlestown, Mass., assignor to Roldiva, Inc., Pittsburgh, Pa.

Continuation of Ser. No. 106,534, Jan. 24, 1980. This application Jun. 19, 1981, Ser. No. 275,096
Int. Cl.[3] B01D *53/34*
U.S. Cl. 423—235 6 Claims

4,335,085

PROCESS FOR THE PREPARATION OF PHOSPHORUS PENTACHLORIDE

Hans-Peter Rieck, and Jürgen Russow, both of Kelkheim, Fed. Rep. of Germany, assignors to Hoechst Aktiengesellschaft, Frankfurt am Main, Fed. Rep. of Germany

Filed Mar. 2, 1981, Ser. No. 239,455
Claims priority, application Fed. Rep. of Germany, Mar. 4, 1980, 3008194
Int. Cl.[3] C01B *25/10*
U.S. Cl. 423—300 17 Claims

4,335,086

HYDROXYAPATITE AND ITS PREPARATION

Michael Spencer, 34 Bayham Rd., Sevenoaks, Kent, United Kingdom (TN13 3XE)

PCT No. PCT/GB79/00118, § 371 Date Mar. 21, 1980, § 102(e) Date Jan. 25, 1980, PCT Pub. No. WO80/00247, PCT Pub. Date Feb. 21, 1980
PCT Filed Jul. 17, 1979, Ser. No. 190,883
Claims priority, application United Kingdom, Jul. 21, 1979, 30646/78
Int. Cl.[3] C01B *25/32*
U.S. Cl. 423—308 6 Claims

4,335,087
PROCESS FOR PREPARING CIS-PT$(NH_3)_2CL_2$
Richard N. Rhoda, Suffern, N.Y., assignor to MPD Technology Corporation, Wyckoff, N.J.
Division of Ser. No. 65,553, Aug. 16, 1979, Pat. No. 4,273,755.
This application Nov. 14, 1980, Ser. No. 206,883
The portion of the term of this patent subsequent to Jun. 16, 1998, has been disclaimed.
Int. Cl.³ C01G *55/00*
U.S. Cl. 423—413 4 Claims

4,335,088
PROCESS FOR PRODUCING AMMONIUM CARBONATE
Vladimir M. Efimov, ulitsa Tsjurupy, 8, korpus 2, kv. 1; Tatyana N. Naumova, ulitsa Festivalnaya, 27, kv. 39; Irina G. Bykova, Otkrytoe shosse, 1, korpus 7, kv. 66, all of Moscow, and Larisa A. Stroganova, poselok Firsanovka, ulitsa Rechnaya, 6, kv. 14, Moskovskaya oblast, all of U.S.S.R.
Filed Feb. 26, 1981, Ser. No. 238,615
Int. Cl.³ C01C *1/26*
U.S. Cl. 423—420 1 Claim

4,335,089
PROCESS FOR PRODUCING CARBON FIBERS
Kunio Maruyama, and Akira Okazaki, both of Okayama, Japan, assignors to Sumitomo Chemical Co., Ltd., Osaka, Japan
Filed Aug. 29, 1980, Ser. No. 182,611
Claims priority, application Japan, Aug. 31, 1979, 54-112314
Int. Cl.³ D01F *9/14, 9/22*
U.S. Cl. 423—447.4 2 Claims

4,335,090
PREPARING CALCIUM HYPOCHLORITE FROM TRIPLE SALT
Walter J. Sakowski, Cleveland; Larry G. Carty, Charleston, and Craig A. Foster, Cleveland, all of Tenn., assignors to Olin Corporation, New Haven, Conn.
Filed Mar. 4, 1981, Ser. No. 240,339
Int. Cl.³ C01B *11/06*
U.S. Cl. 423—474 9 Claims

4,335,091
PROCESS FOR THE MANUFACTURE OF HYDROXYLAMMONIUM PERCHLORATE
Eugen Scholz, Garbsen, and Wolfgang Sievert, Wunstorf, both of Fed. Rep. of Germany, assignors to Riedel-de Haen Aktiengesellschaft, Seelze/Hannover, Fed. Rep. of Germany
Filed Jul. 9, 1981, Ser. No. 281,844
Claims priority, application Fed. Rep. of Germany, Jul. 11, 1980, 3026293
Int. Cl.³ C01B *11/16*
U.S. Cl. 423—476 2 Claims

4,335,092
SYNTHESIS OF HYDROGEN PEROXIDE
Augustine I. Dalton, Jr., and Ronald W. Skinner, both of Allentown, Pa., assignors to Air Products and Chemicals, Inc., Allentown, Pa.
Filed Oct. 10, 1980, Ser. No. 195,827
Int. Cl.³ C01B *15/02*
U.S. Cl. 423—584 9 Claims

4,335,093
PROCESS OF CONVERTING WIND ENERGY TO ELEMENTAL HYDROGEN AND APPARATUS THEREFOR
Robert E. Salomon, Dresher, Pa., assignor to Temple University, Philadelphia, Pa.
Filed Oct. 20, 1980, Ser. No. 198,449
Int. Cl.³ F03B *13/00*
U.S. Cl. 423—644 8 Claims

4,335,094
MAGNETIC POLYMER PARTICLES
Klaus H. Mosbach, Lackalänga 31-38, S-240 20 Furulund, Sweden
PCT No. PCT/SE78/00001, § 371 Date Feb. 2, 1979, § 102(e) Date Jan. 26, 1979, PCT Pub. No. W078/00005, PCT Pub. Date Dec. 7, 1978
PCT Filed Jun. 1, 1978, Ser. No. 21,603
Int. Cl.³ G01N *33/56*
U.S. Cl. 424—1 39 Claims

4,335,095
INDIUM-111 OXINE COMPLEX COMPOSITION
James D. Kelly, Buckinghamshire, England, assignor to The Radiochemical Centre Limited, England
Filed Mar. 10, 1980, Ser. No. 128,923
Claims priority, application United Kingdom, Mar. 21, 1979, 7909867
Int. Cl.³ A61K *49/00, 43/00*
U.S. Cl. 424—1 8 Claims

4,335,096
ABSORBENT FOR USE IN PASSIVE AGGLUTINATION TEST
Yoshikatsu Tsuji, Kawasaki, Japan, assignor to Fujizoki Pharmaceutical Co., Ltd., Tokyo, Japan
Continuation-in-part of Ser. No. 122,998, Feb. 20, 1980, abandoned. This application Sep. 19, 1980, Ser. No. 188,894
Claims priority, application Japan, Feb. 22, 1979, 54/19092
Int. Cl.³ G01N *1/28, 1/34, 33/50, 33/54*
U.S. Cl. 424—12 11 Claims

4,335,097
STABILIZED, PROSTAGLANDIN-CONTAINING TABLETS WITH CONTROLLED RATE OF SOLUBILITY, FOR LOCAL USE AND PROCESS FOR THE PREPARATION THEREOF
Agoston David; Tibor Horvath; Csaba Kiss; Gabor Nagy; Kalman Simon; Ilona Simonidesz nee Vermes; Agnes Udvardi, and Sandor Virag, all of Budapest, Hungary, assignors to Chinoin Gyogyszer es Vegyeszeti Termekek Gyara Rt., Budapest, Hungary
Filed Jan. 15, 1981, Ser. No. 225,361
Int. Cl.³ A61K *9/00, 31/215, 31/19*
U.S. Cl. 424—14 9 Claims

4,335,098
ACYLATED FURANYL AND THIENYL ACRYLIC ACIDS
Roger A. Parker, Cincinnati, Ohio, assignor to Merrell Dow Pharmaceuticals Inc., Cincinnati, Ohio
Continuation-in-part of Ser. No. 181,917, Aug. 27, 1980, abandoned. This application May 26, 1981, Ser. No. 267,236
Int. Cl.³ A61K *31/38, 31/34*; C07D *307/12, 333/24*
U.S. Cl. 424—275 8 Claims

4,335,099
EMPLOYMENT OF ENTERIC COATED IGA FOR HYPOPROTEINEMIA IN INTESTINAL INFECTIOUS DISEASES
Satoshi Funakoshi, Katano; Katuhiro Uriyu, Sakai; Yahiro Uemura; Katashi Nakane, both of Hirakata, and Akio Yamane, Takatsuki, all of Japan, assignors to The Green Cross Corporation, Osaka, Japan
Continuation of Ser. No. 667,193, Mar. 15, 1976, abandoned. This application Sep. 10, 1980, Ser. No. 185,929
Claims priority, application Japan, May 29, 1975, 50-64713
Int. Cl.³ A61K *9/32, 9/34, 9/36, 9/40, 31/78, 31/79, 31/74, 39/00*
U.S. Cl. 424—32 6 Claims

4,335,100
METHOD OF INHIBITING DEXTRANSUCRASE AND ORAL COMPOSITIONS FOR USE THEREIN
John F. Robyt, Ames, Iowa, and John N. Zikopoulos, Phoenix, Ariz., assignors to Iowa State University Research Foundation, Inc., Ames, Iowa
Continuation-in-part of Ser. No. 32,398, Apr. 23, 1979, Pat. No. 4,228,150. This application Aug. 6, 1980, Ser. No. 175,635
Int. Cl.³ A61K *7/16, 9/68, 31/10;* C07H *5/02*
U.S. Cl. 424—48 14 Claims

4,335,101
ORAL HYGIENE ENZYMES AND METHOD FOR PREPARATION
Thomas H. Stoudt, Westfield, and Karl H. Nollstadt, Clark, both of N.J., assignors to Merck & Co., Inc., Rahway, N.J.
Continuation-in-part of Ser. No. 170,642, Aug. 10, 1971, abandoned. This application Jun. 21, 1973, Ser. No. 372,137
Int. Cl.³ A61K *7/28;* C12N *9/24*
U.S. Cl. 424—50 7 Claims

4,335,102
ORAL COMPOSITION FOR CARIES PROPHYLAXIS
Syozi Nakashima, Hatano; Tosiyuki Ozawa, Minami-ashigara; Takeshi Naganuma, Odawara; Takashi Ujiie, Ninomiya; Satoshi Hayashi, Hiratsuka, and Yoshihito Ochiai, Fujisawa, all of Japan, assignors to Lion Corporation, Tokyo, Japan
Filed Sep. 9, 1980, Ser. No. 185,964
Claims priority, application Japan, Sep. 20, 1979, 54-121194
The portion of the term of this patent subsequent to Mar. 31, 1998, has been disclaimed.
Int. Cl.³ A61K *7/18, 9/68*
U.S. Cl. 424—52 16 Claims

4,335,103
MULTIPHASE COSMETIC COMPOSITION
Patricia I. M. Barker, Apex; Nathan A. Ziskin, and Michael J. Grossfeld, both of Raleigh, all of N.C., assignors to Almay, Inc., Apex, N.C.
Filed Mar. 28, 1977, Ser. No. 781,573
Int. Cl.³ A61K *7/021, 7/42, 7/48, 7/50*
U.S. Cl. 424—59 15 Claims

4,335,104
ANHYDROUS MULTI-PURPOSE MOISTURIZING COMPOSITION
Jon S. VanCleave, West Des Moines, Iowa, assignor to United Chemical Corporation, Des Moines, Iowa
Filed Aug. 16, 1978, Ser. No. 934,097
Int. Cl.³ A61K *7/42, 31/60, 47/00*
U.S. Cl. 424—59 11 Claims

4,335,105
SPECIFIC ANTIGEN VACCINE FOR TGE IN SWINE
Patricia M. Gough, Ames, Iowa, assignor to Iowa State University Research Foundation, Inc., Ames, Iowa
Continuation-in-part of Ser. No. 253,070, Apr. 10, 1981, abandoned, which is a continuation of Ser. No. 93,070, Nov. 13, 1979, abandoned. This application May 11, 1981, Ser. No. 262,768
Int. Cl.³ A61K *39/12, 39/215*
U.S. Cl. 424—89 10 Claims

4,335,106
PROCESSES FOR THE GROWTH OF A MODIFIED *PASTEURELLA MULTOCIDA* BACTERIA AND PREPARATION OF A VACCINE THEREFROM
Carrell J. Kucera, Lincoln, Nebr., assignor to Norden Laboratories Inc., Lincoln, Nebr.
Division of Ser. No. 135,828, Mar. 31, 1980, Pat. No. 4,293,545. This application Apr. 17, 1981, Ser. No. 255,144
Int. Cl.³ A61K *39/02*
U.S. Cl. 424—92 10 Claims

4,335,107
MIXTURE TO PROTECT POULTRY FROM SALMONELLA
Glenn H. Snoeyenbos, 42 Hills Rd., Amherst, Mass. 01002; Olga M. Weinack, 179 Woodbridge St., South Hadley, Mass. 01075, and Charles F. Smyser, 49 Harlow Dr., Amherst, Mass. 01002
Filed Jun. 5, 1978, Ser. No. 912,829
Int. Cl.³ A61K *35/12, 35/66, 35/74, 39/295*
U.S. Cl. 424—93 47 Claims

4,335,108
PAULOMYCIN A AND B AND PREPARATION THEREOF
Alexander D. Argoudelis, Portage; Vincent P. Marshall, Kalamazoo, and Leroy E. Johnson, Kalamazoo Township, Kalamazoo County, all of Mich., assignors to The Upjohn Company, Kalamazoo, Mich.
Filed Aug. 25, 1980, Ser. No. 180,682
Int. Cl.³ A61K *35/00;* C12P *1/06;* C12N *1/20*
U.S. Cl. 424—117 10 Claims

4,335,109
WATER REPELLENT AQUEOUS WOOD TREATING SOLUTIONS
Robert E. Hill, Webster Groves, Mo., assignor to Koppers Company, Inc., Pittsburgh, Pa.
Continuation of Ser. No. 96,333, Nov. 21, 1979, abandoned. This application Dec. 15, 1980, Ser. No. 216,123
Int. Cl.³ A01N *59/20, 59/06*
U.S. Cl. 424—140 2 Claims

4,335,110
PHARMACEUTICAL COMPOSITIONS OF SANGUINARIA GALANGAL AND ZINC CHLORIDE
Keith R. Collins, Estoril, Portugal, assignor to Orewa Inc., Estoril, Portugal
Filed Aug. 18, 1980, Ser. No. 179,159
Claims priority, application United Kingdom, Aug. 23, 1979, 7929364
Int. Cl.³ A01N *59/16, 65/00;* A61K *33/30, 35/78*
U.S. Cl. 424—145 11 Claims

4,335,111
COMPOUNDS ASSOCIATING PEPTIDYL OF AMINOACYL RESIDUES TO LIPOPHILIC GROUPS AND PHARMACEUTICAL COMPOSITIONS CONTAINING SAID NEW COMPOUNDS
Pierre Lefrancier, Bures sur Yvette; Edgar Lederer, Sceaux; Jean Choay, and Louis Chedid, both of Paris, all of France, assignors to Agence National de Valorisation de la Recherche (ANVAR), Neuilly Sur Seine, France
Filed Dec. 21, 1979, Ser. No. 106,022
Claims priority, application United Kingdom, Dec. 22, 1978, 49887/78
Int. Cl.³ A61K *37/00, 37/02;* C07C *103/52*
U.S. Cl. 424—177 36 Claims

4,335,112
METHOD OF TREATING MITES IN POULTRY
Joseph R. Childers, 1123 N. Main St., Mocksville, N.C. 27028
Filed Mar. 19, 1981, Ser. No. 245,568
Int. Cl.³ A61K *37/00*
U.S. Cl. 424—177 5 Claims

4,335,113
TRITERPENIC SAPONIN HAVING PHARMACOLOGICAL POTENCY
Henri Combier, Rilleux le Pape; Gisele Prat, Talence, and Henri Pontagnier, Pessac, all of France, assignors to Laboratoires Sarget, Merignac, France
Filed May 12, 1980, Ser. No. 148,932
Claims priority, application France, May 11, 1979, 79 11964
Int. Cl.³ A61K *31/70;* C07H *15/20*
U.S. Cl. 424—180 7 Claims

4,335,114
1-N-ALKYLSISOMICIN DERIVATIVES, THEIR PRODUCTION AND THEIR MEDICINAL USE
Eckart Voss, Cologne; Karl G. Metzger, Wuppertal; Hans-Joachim Zeiler, Velbert; Uwe Petersen, Leverkusen, and Peter Stadler, Haan, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany
Filed Jun. 20, 1980, Ser. No. 161,527
Claims priority, application Fed. Rep. of Germany, Jul. 12, 1979, 2928183
Int. Cl.³ A61K *31/71;* C07H *15/22*
U.S. Cl. 424—180 17 Claims

4,335,115
ANTI-ACNE COMPOSITION
Edward D. Thompson; Stephen B. Carter, both of Cincinnati, and Gary L. Manring, Oxford, all of Ohio, assignors to The Procter & Gamble Company, Cincinnati, Ohio
Continuation of Ser. No. 737,315, Nov. 1, 1976, abandoned. This application Oct. 17, 1977, Ser. No. 842,767
Int. Cl.³ A61K *31/71*
U.S. Cl. 424—181 2 Claims

4,335,116
MINERAL-CONTAINING THERAPEUTIC COMPOSITIONS
James R. Howard, Brawley, Calif., assignor to University Patents, Inc., Norwalk, Conn.
Filed Oct. 7, 1980, Ser. No. 194,808
Int. Cl.³ A61K *31/68, 31/315*
U.S. Cl. 424—201 19 Claims

4,335,117
1-HYDROXY-2,2,2-TRICHLOROETHANE-THIONO-PHOSPHONIC ACID DIMETHYL ESTERS AS INSECTICIDE
Reimer Cölln, Wuppertal; Wilhelm Sirrenberg, Sprockhövel; Wolfgang Behrenz, Overath-Steinenbrueck, and Wilhelm Stendel, Wuppertal, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany
Continuation of Ser. No. 665,344, Mar. 9, 1976, abandoned. This application Dec. 27, 1977, Ser. No. 865,084
Claims priority, application Fed. Rep. of Germany, Mar. 21, 1975, 2512375
Int. Cl.³ C07F *9/40;* A01N *57/20*
U.S. Cl. 424—217 2 Claims

4,335,118
INSECTICIDAL α-CYANO-3-PHENOXY-BENZYL-2-(4-AZIDOPHENYL)-3-METHYLBUTYRATES
Hanspeter Fischer, Bottmingen; Rudolph C. Thummel, Courgenay, and Rudolf Wehrli, Rheinfelden, all of Switzerland, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.
Filed Oct. 9, 1980, Ser. No. 195,712
Claims priority, application Switzerland, Oct. 17, 1979, 9335/79; Jun. 4, 1980, 4332/80
Int. Cl.³ A01N *47/08;* C07C *69/76, 121/86*
U.S. Cl. 424—226 5 Claims

4,335,119
QUICK-ACTING DIURETIC COMPOSITIONS
Andreas Johnsen, Griesheim, Fed. Rep. of Germany, assignor to Rohm, Pharma GmbH, Darmstadt, Fed. Rep. of Germany
Filed Mar. 30, 1979, Ser. No. 25,586
Claims priority, application Fed. Rep. of Germany, Apr. 10, 1978, 2815442
Int. Cl.³ A61K *31/505, 31/52, 31/625*
U.S. Cl. 424—229 3 Claims

4,335,120
ADMINISTRATION OF BIOLOGICALLY ACTIVE VITAMIN D_3 AND VITAMIN D_2 MATERIALS
Michael F. Holick, Sudbury, Mass., and Milan R. Uskokovic, Upper Montclair, N.J., assignors to Hoffmann-La Roche Inc., Nutley, N.J.
Continuation-in-part of Ser. No. 137,673, Apr. 4, 1980, abandoned, which is a division of Ser. No. 22,393, Mar. 21, 1979, Pat. No. 4,230,701. This application Nov. 3, 1980, Ser. No. 203,291
Int. Cl.³ A61K *31/59, 31/56*
U.S. Cl. 424—236 27 Claims

4,335,121
ANDROSTANE CARBOTHIOATES
Gordon H. Phillipps, Wembley; Brian M. Bain, Chalfont St. Peter; Ian P. Steeples, Ruislip Manor, and Christopher Williamson, Cobham, all of England, assignors to Glaxo Group Limited, London, England
Filed Feb. 13, 1981, Ser. No. 234,113
Claims priority, application United Kingdom, Feb. 15, 1980, 8005174
Int. Cl.³ C07J *7/00;* A61K *31/56*
U.S. Cl. 424—241 25 Claims

4,335,122
DIHYDRO-DIBENZOXEPINES-THIEPINES AND -MORPHANTHRIDONES, COMPOSITIONS AND USE
Arthur R. McFadden, East Brunswick, and Daniel E. Aultz, Middlesex, both of N.J., assignors to Hoechst-Roussel Pharmaceuticals Inc., Somerville, N.J.
Filed Mar. 18, 1981, Ser. No. 225,122
Int. Cl.[3] A61K *31/335, 31/55;* C07D *223/20, 313/12*
U.S. Cl. 424—244 87 Claims

4,335,123
1-ACYL-8-(3-AMINO-2-HYDROXYPROPOXY)-1,2,3,4-TETRAHYDROQUINOLINES, COMPOSITIONS AND USE
Otto Gräwinger, Frankfurt am Main; Thomas Raabe, Rodenbach; Rudi Beyerle, Frankfurt am Main; Josef Scholtholt, Hanau-Mittelbuchen, and Rolf-Eberhard Nitz, Frankfurt am Main, all of Fed. Rep. of Germany, assignors to Cassella Aktiengesellschaft, Frankfurt am Main, Fed. Rep. of Germany
Filed Aug. 15, 1980, Ser. No. 178,475
Claims priority, application Fed. Rep. of Germany, Aug. 28, 1979, 2934609
Int. Cl.[3] A61K *31/54, 31/47;* C07D *215/26, 417/12*
U.S. Cl. 424—246 17 Claims

4,335,124
1-ALKYL, 1-PHENYL-BUTENES
Eugene E. Galantay, Liestal, Switzerland, assignor to Sandoz, Inc., E. Hanover, N.J.
Division of Ser. No. 65,277, Aug. 9, 1979, Pat. No. 4,273,787, which is a continuation of Ser. No. 656,785, Feb. 10, 1976, abandoned, which is a continuation-in-part of Ser. No. 626,943, Oct. 29, 1975, abandoned, which is a continuation-in-part of Ser. No. 390,032, Aug. 20, 1973, abandoned. This application Oct. 14, 1980, Ser. No. 196,474
Int. Cl.[3] A61K *31/03;* C07C *25/24;* A61K *31/535*
U.S. Cl. 424—248.4 8 Claims

4,335,125
1-(1,3-DIOXOLAN-2-YLMETHYL)-1H-IMIDAZOLES
Jan Heeres, Vosselaar; Leo J. J. Backx, Arendonk, and Joseph H. Mostmans, Antwerp, all of Belgium, assignors to Janssen Pharmaceutica, N.V., Beerse, Belgium
Division of Ser. No. 853,728, Nov. 21, 1977, Pat. No. 4,144,346, which is a continuation-in-part of Ser. No. 764,263, Jan. 31, 1977, abandoned. This application Jan. 8, 1979, Ser. No. 1,613
Int. Cl.[3] A61K *405/14*
U.S. Cl. 424—250 11 Claims

4,335,126
1-[3-(3,4,5-TRIMETHOXYPHENOXY)-2-HYDROXY-PROPYL]-4-ARYL-PIPERAZINE-DERIVATIVES HAVING PHARMACEUTICAL ACTIVITY
Axel Kleemann, Hanau; Vladimir Jakovlev, Maintal; Klaus Thiemer, Hanau, and Jürgen Engel, Alzenau, all of Fed. Rep. of Germany, assignors to Degussa Aktiengesellschaft, Frankfurt, Fed. Rep. of Germany
Continuation-in-part of Ser. No. 891,382, Mar. 29, 1978, abandoned. This application Oct. 3, 1980, Ser. No. 193,482
Claims priority, application United Kingdom, Apr. 4, 1977, 10100/77
Int. Cl.[3] A61K *31/495;* C07D *295/08*
U.S. Cl. 424—250 43 Claims

4,335,127
PIPERIDINYLALKYL QUINAZOLINE COMPOUNDS, COMPOSITION AND METHOD OF USE
Jan Vandenberk, Beerse; Ludo Kennis, Vosselaar; Marcel Van der Aa, and Albert Van Heertum, both of Vosselaar, all of Belgium, assignors to Janssen Pharmaceutica, N.V., Beerse, Belgium
Continuation-in-part of Ser. No. 1,493, Jan. 8, 1979, abandoned. This application Oct. 12, 1979, Ser. No. 84,272
Int. Cl.[3] C07D *401/06;* A61K *31/445*
U.S. Cl. 424—251 15 Claims

4,335,128
PROCESS FOR THE TREATMENT OF PATIENTS SUFFERING FROM DREPANOCYTOSIS
Jean Blanchard, Toulouse, and Monique Verry, Saint-Cloud, both of France, assignors to Omnium Financier Aquitaine pour l'Hygiene et la Sante (Sanoli), Paris, France
Continuation of Ser. No. 917,374, Jun. 20, 1978, Pat. No. 4,210,649. This application May 19, 1980, Ser. No. 150,890
Claims priority, application France, Jun. 22, 1977, 77 19161
The portion of the term of this patent subsequent to Jul. 1, 1997, has been disclaimed.
Int. Cl.[3] A61K *31/435*
U.S. Cl. 424—256 10 Claims

4,335,129
THIAZOLO[3,2-6]ISOQUINOLINES, COMPOSITIONS AND USE THEREOF
Kazuo Kubo, Urawa; Noriki Ito, Iwatsuki; Isao Souzu, Urawa; Yasuo Isomura, Yokohama, and Hiroshige Homma, Omiyu, all of Japan, assignors to Yamanouchi Pharmaceutical Co. Ltd., Tokyo, Japan
Continuation of Ser. No. 29,000, Apr. 11, 1979, abandoned, which is a division of Ser. No. 861,980, Dec. 19, 1977, Pat. No. 4,163,844. This application Jan. 28, 1981, Ser. No. 229,183
Claims priority, application Japan, Dec. 28, 1976, 51-157867; Oct. 11, 1977, 52-121666
Int. Cl.[3] A61K *31/47;* C07D *513/04*
U.S. Cl. 424—258 17 Claims

4,335,130
ANTIFUNGAL COMPOSITION
Thomas J. Schwan, and Joseph E. Gray, both of Norwich, N.Y., assignors to Morton-Norwich Products, Inc., Norwich, N.Y.
Filed May 12, 1981, Ser. No. 263,071
Int. Cl.[3] A01N *43/42*
U.S. Cl. 424—258 1 Claim

4,335,131
AMRINONE-N-GLUCURONIDE, SALTS AND CARDIOTONIC USE THEREOF
James F. Baker, East Greenbush, and Bernard W. Chalecki, Jr., Sand Lake, both of N.Y., assignors to Sterling Drug Inc., New York, N.Y.
Filed Nov. 24, 1980, Ser. No. 209,393
Int. Cl.[3] A61K *31/44;* C07D *405/14*
U.S. Cl. 424—263 5 Claims

4,335,132
5-(PY-Y)-1H-BENZIMIDAZOL-2-OLS AND 5-(PY-Y-)-1H-BENZIMIDAZOLE-2-THIOLS
George Y. Lesher, Schodack, and Baldev Singh, East Greenbush, both of N.Y., assignors to Sterling Drug, Inc., New York, N.Y.
Filed Dec. 29, 1980, Ser. No. 220,977
Int. Cl.[3] A61K *31/46;* C07D *487/02*
U.S. Cl. 424—263 12 Claims

4,335,133
ARYLAMINO-4,4-DIALKYL-5-METHYLENE-1,3-THIAZOLINES
Edward I. Aoyagi, Petaluma, Calif., assignor to Chevron Research Company, San Francisco, Calif.
Division of Ser. No. 115,654, Jan. 28, 1980, Pat. No. 4,271,306.
This application Nov. 6, 1980, Ser. No. 204,437
Int. Cl.[3] C07D *277/08*
U.S. Cl. 424—270 7 Claims

4,335,134
PESTICIDALLY ACTIVE N,N-DIMETHYL-CARBAMIC ACID O-(4,6-DIHYDRO-2H-THIENO[3,4-C]PYRAZOL-3-YL) ESTERS AND 5-OXIDES AND 5,5-DIOXIDES THEREOF
Fritz Maurer, Wuppertal; Ingeborg Hammann, Cologne, and Bernhard Homeyer, Leverkusen, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany
Filed Jan. 15, 1981, Ser. No. 225,548
Claims priority, application Fed. Rep. of Germany, Jan. 29, 1980, 3003019
Int. Cl.[3] A01N *43/56;* C07D *495/04*
U.S. Cl. 424—273 P 8 Claims

4,335,135
5 AMINO-3,4,5,6 TETRAHYDRO-1H-[-6-]CYCLOHEPT[C,D]INDOLOLS AND A METHOD FOR THEIR USE AS HYPOTENSIVES
Lucien Nedelec, Le Raincy; Daniel Frechet, Paris; Claude Dumont, Nogent sur Marne; Guy Plassard, Savigny sur Orge, and Neil L. Brown, Paris, all of France, assignors to Roussel Uclaf, Paris, France
Filed Feb. 23, 1981, Ser. No. 236,610
Claims priority, application France, Feb. 26, 1980, 80 04198; Nov. 18, 1980, 80 24406
Int. Cl.[3] A61K *31/40;* C07D *209/80*
U.S. Cl. 424—274 12 Claims

4,335,136
ANTI-INFLAMMATORY 4,5-DIARYL-α-(POLYFLUOROALKYL)-1H-PYRROLE-2-METHANAMINES
Saul C. Cherkofsky, Wilmington, Del., assignor to E. I. Du Pont de Nemours and Company, Wilmington, Del.
Continuation-in-part of Ser. No. 141,664, Apr. 18, 1980, abandoned. This application Mar. 4, 1981, Ser. No. 237,638
Int. Cl.[3] A61K *31/40, 31/44;* C07D *207/335, 401/04*
U.S. Cl. 424—274 32 Claims

4,335,137
HALOETHENYLTHIENYLETHANONES FOR SYSTEMIC NEMATODE CONTROL
Donald R. James, Lockport, N.Y., assignor to FMC Corporation, Philadelphia, Pa.
Filed Mar. 17, 1980, Ser. No. 130,937
Int. Cl.[3] A01N *43/02*
U.S. Cl. 424—275 6 Claims

4,335,138
NOVEL CARBAMATES, THEIR PREPARATION, AND PHARMACEUTICAL FORMULATIONS CONTAINING THESE COMPOUNDS
Walter-Wielant Wiersdorff, Mutterstadt; Karl-Heinz Geiss, Beindersheim; Harald Weifenbach, Ludwigshafen; Wolfgang Worstmann, Gruenstadt; Dieter Lenke, Ludwigshafen, and Rolf Kretzschmar, Gruenstadt, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Fed. Rep. of Germany
Filed Sep. 15, 1980, Ser. No. 186,841
Claims priority, application Fed. Rep. of Germany, Sep. 29, 1979, 2939660
Int. Cl.[3] C07C *125/065, 125/04;* C07D *339/08, 339/06, 333/36, 307/66;* A01N *47/12, 47/20*
U.S. Cl. 424—275 15 Claims

4,335,139
PHARMACEUTICAL FORMULATIONS CONTAINING PROSTACYCLIN COMPOUNDS
Ian S. Watts, Sidcup, and Peter H. Marsden, Dartford, both of England, assignors to Burroughs Wellcome Co., Research Triangle Park, N.C.
Continuation of Ser. No. 39,645, May 16, 1979, abandoned. This application Aug. 28, 1980, Ser. No. 182,054
Claims priority, application United Kingdom, May 17, 1978, 20175/78
Int. Cl.[3] A61K *31/34*
U.S. Cl. 424—285 34 Claims

4,335,140
INSECTICIDAL TRIFLUOROETHANIMIDOTHIOATE DISULFIDES
Marcus P. Moon, Wilmington, Del., assignor to E. I. Du Pont de Nemours and Company, Wilmington, Del.
Filed Feb. 9, 1981, Ser. No. 232,565
Int. Cl.[3] A01N *37/06;* C07C *119/20*
U.S. Cl. 424—298 37 Claims

4,335,141
2-SUBSTITUTED-AMINOPROPENE-AND PROPANENITRILE ANTIMICROBIAL AND ANTI-INFLAMMATORY AGENTS
Nathaniel Grier, Englewood; Richard A. Dybas, Somerville, and Bruce E. Witzel, Rahway, all of N.J., assignors to Merck & Co., Inc., Rahway, N.J.
Filed Dec. 26, 1979, Ser. No. 106,616
Int. Cl.[3] C07C *121/45, 121/48, 121/43;* A61K *31/275*
U.S. Cl. 424—304 10 Claims

4,335,142
ARYL (1-ARYLSULFONYL) VINYL SULFONES
Douglas I. Relyea, and Robert A. Davis, both of New Haven, Conn., assignors to Uniroyal, Inc., New York, N.Y.
Filed Sep. 11, 1979, Ser. No. 74,271
Int. Cl.[3] C07C *147/06;* A01N *31/08*
U.S. Cl. 424—337 21 Claims

4,335,143
DRIED ALBEDO CLOUDING AGENT AND PROCESS THEREFOR
Claire Wiener, Spring Valley, N.Y., and Gerhard J. Haas, Woodcliff Lake, N.J., assignors to General Foods Corporation, White Plains, N.Y.
Filed Sep. 30, 1980, Ser. No. 192,262
Int. Cl.[3] A23L *1/212, 2/00*
U.S. Cl. 426—50 10 Claims

4,335,144
PREPARATION OF POROUS ACTIVE YEAST GRANULES
Franz-Josef Carduck, Haan; Dietrich Kloetzer, Dusseldorf, and Gerard Veldman, Brueggen, all of Fed. Rep. of Germany, assignors to Deutsche Hefewerke GmbH, Hamburg-Wandsbek, Fed. Rep. of Germany
Continuation-in-part of Ser. No. 21,781, Mar. 19, 1979, abandoned. This application Jan. 19, 1981, Ser. No. 226,146
Int. Cl.³ C12C *11/18, 11/32*
U.S. Cl. 426—62 10 Claims

4,335,145
METHOD FOR CONTROLLING THE FLOW OF FRUIT AND FRUIT JUICE THROUGH A JUICE EXTRACTION FACILITY
Robert C. Stanley, Lakeland, Fla., assignor to FMC Corporation, Chicago, Ill.
Filed Jul. 24, 1980, Ser. No. 171,917
Int. Cl.³ G01N *33/14*
U.S. Cl. 426—231 3 Claims

4,335,146
PROCESSING FISH RAW MATERIAL
Per V. H. Bladh, Jarna, Sweden, assignor to Alfa-Laval, Inc., Poughkeepsie, N.Y.
Filed Feb. 2, 1981, Ser. No. 230,702
Int. Cl.³ A01K *43/00*
U.S. Cl. 426—231 13 Claims

4,335,147
METHOD FOR MAKING CONFECTIONS
Helmut Sollich, Albernberg 194, 4925 Kalletal-Talle, Fed. Rep. of Germany
Filed Mar. 12, 1980, Ser. No. 129,672
Int. Cl.³ A23G *3/00*
U.S. Cl. 426—295 7 Claims

4,335,148
METHODS OF PREVENTING GRAIN SPROUTING AFTER HARVEST THROUGH THE APPLICATION OF SULFUR DIOXIDE, NITROGEN AND AMMONIA GASES
Frederick D. Vidal, Englewood Cliffs, and Anantharman Jayaraman, Nutley, both of N.J., assignors to Pennwalt Corporation, Philadelphia, Pa.
Continuation-in-part of Ser. No. 156,501, Jun. 4, 1980, Pat. No. 4,309,451, which is a division of Ser. No. 50,162, Jun. 20, 1979, abandoned, and a continuation-in-part of Ser. No. 38,739, May 14, 1979, abandoned. This application Aug. 11, 1980, Ser. No. 176,708
Int. Cl.³ A23B *9/00*; A23L *3/34*
U.S. Cl. 426—319 6 Claims

4,335,149
DIRECT CONDENSATION OF FOOD VOLATILES ONTO A FOOD SUBSTRATE AT CRYOGENIC TEMPERATURES
Gordon K. Stipp, West Chester, Ohio, assignor to The Procter & Gamble Company, Cincinnati, Ohio
Filed Jun. 2, 1980, Ser. No. 155,709
Int. Cl.³ A23F *5/24*
U.S. Cl. 426—386 19 Claims

4,335,150
LOW TEMPERATURE FOOD DRYING PROCESS
Hideaki Hosaka, Fukuyama, and Setuya Kuri, Kamakura, both of Japan, assignors to Chlorine Engineers Corp. and Kun Chemical Engineers, both of Tokyo, Japan
Continuation of Ser. No. 50,131, Jun. 19, 1979, abandoned. This application Oct. 14, 1980, Ser. No. 196,672
Int. Cl.³ A23B *4/04, 7/02, 9/00*; F26B *5/00*
U.S. Cl. 426—465 8 Claims

4,335,151
METHOD FOR DECORTICATING SEEDS
Jacques-Jean Caubet, St. Etienne, France, assignor to Centre Stephanois de Recherches Mecaniques Hydro-Mecanique et Frottement, France
Continuation of Ser. No. 909,801, May 26, 1978, abandoned, which is a continuation-in-part of Ser. No. 696,462, Jun. 16, 1976, abandoned. This application Apr. 4, 1980, Ser. No. 137,385
Claims priority, application France, Jun. 16, 1975, 75 19495
Int. Cl.³ B02B *3/00*
U.S. Cl. 426—482 7 Claims

4,335,152
METHYL SUBSTITUTED NORBORNANE CARBOXALDEHYDES, ORGANOLEPTIC USES THEREOF AND PROCESS FOR PREPARING SAME
Philip T. Klemarczyk, Old Bridge; James M. Sanders, Eatontown; Manfred H. Vock, Locust; Joaquin F. Vinals, Red Bank; Frederick L. Schmitt, Holmdel, and Edward J. Granda, Englishtown, all of N.J., assignors to International Flavors & Fragrances Inc., New York, N.Y.
Division of Ser. No. 152,187, May 22, 1980, Pat. No. 4,284,824. This application Dec. 29, 1980, Ser. No. 220,646
The portion of the term of this patent subsequent to Apr. 27, 1999, has been disclaimed.
Int. Cl.³ A23L *2/26*
U.S. Cl. 426—538 2 Claims

4,335,153
IMITATION COCOA POWDER AND METHOD OF PREPARING SAME
Steven M. Rikon, Strongsville, Ohio, and Frank del Valle, St. Ann, Ill., assignors to SCM Corporation, New York, N.Y.
Continuation-in-part of Ser. No. 46,156, Jun. 5, 1979, abandoned. This application Jun. 5, 1980, Ser. No. 156,618
Int. Cl.³ A23G *1/00*
U.S. Cl. 426—540 15 Claims

4,335,154
METHOD FOR PREPARING A BAKED PRODUCT CONTAINING ALKALI METAL ALUMINUM PHOSPHATE
Robert E. Benjamin, and Thomas E. Edging, both of Nashville, Tenn., assignors to Stauffer Chemical Company, Westport, Conn.
Division of Ser. No. 972,097, Dec. 21, 1978, Pat. No. 4,260,591. This application Aug. 11, 1980, Ser. No. 176,882
The portion of the term of this patent subsequent to Apr. 7, 1998, has been disclaimed.
Int. Cl.³ A21D *8/00*
U.S. Cl. 426—551 10 Claims

4,335,155
COMPOSITION FOR AERATED FROZEN DESSERTS CONTAINING FRUIT PUREE AND METHOD OF PREPARATION
Jon R. Blake, Brooklyn Center; Richard K. Knutson, Corcoran, and Deon L. Strommer, Minneapolis, all of Minn., assignors to General Mills, Inc., Minneapolis, Minn.
Filed Mar. 6, 1981, Ser. No. 241,293
Int. Cl.[3] A23G *9/02*
U.S. Cl. 426—565 14 Claims

4,335,156
EDIBLE FAT PRODUCT
Lawrence Kogan, Stamford, and Turiddu A. Pelloso, Danbury, both of Conn., assignors to Nabisco Brands, Inc., New York, N.Y.
Filed Sep. 19, 1980, Ser. No. 188,657
Int. Cl.[3] A23D *3/02;* C11C *3/10*
U.S. Cl. 426—603 19 Claims

4,335,157
FLUID SHORTENING
R. Douglas Varvil, Olmsted Falls, Ohio, assignor to SCM Corporation, New York, N.Y.
Filed Aug. 5, 1980, Ser. No. 175,432
Int. Cl.[3] A21D *2/16;* A23D *5/02*
U.S. Cl. 426—606 6 Claims

4,335,158
BANDAGE CARRYING ION-LEACHABLE CEMENT COMPOSITIONS
Charles H. Beede, East Brunswick, and Richard N. Zirnite, Somerset, both of N.J., assignors to Johnson & Johnson, New Brunswick, N.J.
Filed Nov. 7, 1980, Ser. No. 204,983
Int. Cl.[3] A61F *5/04*
U.S. Cl. 427—2 9 Claims

4,335,159
METHOD FOR DEVELOPING LATENT ELECTROSTATIC IMAGES
Delmer G. Parker, Irondequoit, N.Y., assignor to Xerox Corporation, Stamford, Conn.
Continuation of Ser. No. 728,803, Oct. 1, 1976, abandoned, which is a division of Ser. No. 615,658, Sep. 22, 1975, Pat. No. 4,050,413. This application Nov. 15, 1979, Ser. No. 94,530
Int. Cl.[3] B05D *3/06*
U.S. Cl. 427—14.1 3 Claims

4,335,160
CHEMICAL PROCESS
Michael P. Neary, 409 E. Coronado, #2, Santa Fe, N. Mex. 87501, and Thomas A. Wilson, 14 Bayview Ct., Manhasset, N.Y. 11030
Continuation-in-part of Ser. No. 962,770, Nov. 21, 1978, abandoned. This application Dec. 4, 1980, Ser. No. 213,039
Int. Cl.[3] B05D *3/06;* C23C *11/00, 13/00*
U.S. Cl. 427—38 18 Claims

4,335,161
THIN FILM TRANSISTORS, THIN FILM TRANSISTOR ARRAYS, AND A PROCESS FOR PREPARING THE SAME
Fang C. Luo, Pittsford, N.Y., assignor to Xerox Corporation, Stamford, Conn.
Filed Nov. 3, 1980, Ser. No. 203,218
Int. Cl.[3] H01L *21/285*
U.S. Cl. 427—86 6 Claims

4,335,162
METHOD OF PRODUCING A FAULT TRANSPARENT BUBBLE MEMORY BY DIFFUSING MANGANESE IN PRESELECTED PERMALLOY ELEMENTS
James A. Cunningham, Saratoga, and Anthony M. Tuxford, San Francisco, both of Calif., assignors to National Semiconductor Corporation, Santa Clara, Calif.
Filed Apr. 25, 1980, Ser. No. 143,624
Int. Cl.[3] G11C *19/08;* B05D *5/12*
U.S. Cl. 427—130 1 Claim

4,335,163
HIGH GLOSS WATER-BASE COATING COMPOSITION
Jack Y. Wong, 10173 Miner Pl., Cupertino, Calif. 95014
Filed Sep. 25, 1980, Ser. No. 190,604
Int. Cl.[3] B05D *5/00*
U.S. Cl. 427—256 18 Claims

4,335,164
CONDITIONING OF POLYAMIDES FOR ELECTROLESS PLATING
David A. Dillard, Diamond Bar; Eileen Maguire, Arcadia, and Lawrence P. Donovan, III, Monrovia, all of Calif., assignors to Crown City Plating Co., El Monte, Calif.
Continuation-in-part of Ser. No. 159,585, Jun. 16, 1980, which is a continuation-in-part of Ser. No. 970,923, Dec. 19, 1978, abandoned, which is a continuation-in-part of Ser. No. 159,503, Jun. 16, 1980, Pat. No. 4,309,462, which is a continuation-in-part of Ser. No. 970,929, Dec. 19, 1978, abandoned. This application Dec. 22, 1980, Ser. No. 218,513
Claims priority, application United Kingdom, Nov. 7, 1979, 7948565
Int. Cl.[3] B05D *3/10*
U.S. Cl. 427—304 32 Claims

4,335,165
SNAP TOGETHER ORNAMENT
Roy A. Powers, 18537 Arrow Hwy., Covina, Calif. 91722
Filed Mar. 20, 1981, Ser. No. 245,942
Int. Cl.[3] A47G *33/08*
U.S. Cl. 428—8 5 Claims

4,335,166
METHOD OF MANUFACTURING A MULTIPLE-PANE INSULATING GLASS UNIT
Renato A. Lizardo, Minnetonka, and Roger D. O'Shaughnessy, Chaska, both of Minn., assignors to Cardinal Insulated Glass Co., Minneapolis, Minn.
Filed May 11, 1981, Ser. No. 262,424
Claims priority, application Fed. Rep. of Germany, Nov. 21, 1980, 3043973
Int. Cl.[3] E06B *3/24*
U.S. Cl. 428—34 10 Claims

4,335,167
BRAKE FLUID RESERVOIR COMPRISING POLYMETHYLPENTENE AND 10–20% GLASS FIBERS
John W. Kolditz, Alton, Ill., assignor to Edison International, Inc., Rolling Meadows, Ill.
Filed Jun. 2, 1980, Ser. No. 155,453
Int. Cl.[3] B65D *6/34;* B32B *27/20;* C08K *7/14*
U.S. Cl. 428—35 8 Claims

4,335,168
HAIR STYLER EXTRUSION
Rayko Ergaver, Nassau, The Bahamas, assignor to Capella Inc., Freeport, The Bahamas
Filed Aug. 26, 1980, Ser. No. 181,508
Int. Cl.³ B32B *1/08*
U.S. Cl. 428—36 10 Claims

4,335,169
SLOTTED CONCRETE PIPE
Vincent A. Saggese, 15 Pleasant View Dr., Bayville, N.Y. 11709
Division of Ser. No. 89,955, Oct. 31, 1979, abandoned. This application Dec. 22, 1980, Ser. No. 219,379
Int. Cl.³ F16L *9/00*; E02B *11/00*
U.S. Cl. 428—36 8 Claims

4,335,170
SIMULATED STAINED AND LEADED GLASS WINDOWS
Donald Butler, Costa Mesa, Calif., assignor to Stained Glass Overlay, Inc., Mission Viejo, Calif.
Division of Ser. No. 962,123, Nov. 20, 1978, abandoned. This application Jun. 12, 1980, Ser. No. 158,919
Int. Cl.³ B44F *1/06*
U.S. Cl. 428—38 12 Claims

4,335,171
TRANSFER TAPE HAVING ADHESIVE FORMED FROM TWO LAMINAE
Robert E. Zenk, River Falls, Wis., assignor to Minnesota Mining and Manufacturing Company, Saint Paul, Minn.
Filed Oct. 6, 1980, Ser. No. 194,460
Int. Cl.³ A61F *13/02*; B32B *27/00*; C09U *7/02*
U.S. Cl. 428—40 4 Claims

4,335,172
PRESSURE SENSITIVE LABEL STRIP
Yo Sato, Tokyo, Japan, assignor to Kabushiki Kaisha Sato, Japan
Continuation-in-part of Ser. No. 926,704, Jul. 20, 1978, Pat. No. 4,210,688, which is a continuation-in-part of Ser. No. 867,007, Jan. 5, 1978, abandoned. This application Nov. 13, 1979, Ser. No. 93,634
Claims priority, application Japan, Nov. 14, 1978, 53/155772[U]
Int. Cl.³ G09F *3/00*; B65D *65/30*; B32B *3/16*
U.S. Cl. 428—42 9 Claims

4,335,173
METHOD AND MEANS FOR REDUCING UNDESIRABLE EFFECTS OF DIRT PARTICLES ON A FLEXIBLE RECORD DEVICE
Angel Caraballo, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.
Filed Sep. 22, 1980, Ser. No. 189,503
Int. Cl.³ B32B *3/02, 27/30*; H04N *5/76*
U.S. Cl. 428—65 9 Claims

4,335,174
HONEYCOMB STRUCTURE END CLOSURE
Raymond P. Belko, Blackwood, N.J., assignor to The Boeing Company, Seattle, Wash.
Filed Sep. 4, 1980, Ser. No. 183,939
Int. Cl.³ B32B *3/12, 5/18*
U.S. Cl. 428—73 6 Claims

4,335,175
THERMOPLASTIC FILM LAMINATES
James L. Webb, Simpsonville, S.C., assignor to W. R. Grace & Co., Duncan, S.C.
Filed Oct. 1, 1980, Ser. No. 193,245
Int. Cl.³ B32B *27/08, 27/18*
U.S. Cl. 428—213 4 Claims

4,335,176
BONDED NEEDLED FIBER GLASS THERMOPLASTIC REINFORCED MATS
John A. Baumann, Lower Burrell, Pa., assignor to PPG Industries, Inc., Pittsburgh, Pa.
Filed Nov. 24, 1980, Ser. No. 209,442
Int. Cl.³ D04H *3/10, 3/12*
U.S. Cl. 428—228 12 Claims

4,335,177
GLASS FIBER-REINFORCED CEMENT PLATES
Shigeru Takeuchi, Osaka, Japan, assignor to Kurimoto Iron Works, Ltd., Osaka, Japan
Filed Sep. 29, 1980, Ser. No. 191,801
Claims priority, application Japan, Oct. 3, 1979, 54-129019; Jul. 18, 1980, 55-99041; Jul. 21, 1980, 55-99647
Int. Cl.³ B32B *5/12, 5/14, 5/28, 13/14*
U.S. Cl. 428—247 11 Claims

4,335,178
TEXTILES CONTAINING A POLY(OXYORGANOPHOSPHATE/PHOSPHONATE) FLAME RETARDANT
Ralph B. Fearing, Bardonia, N.Y., assignor to Stauffer Chemical Company, Westport, Conn.
Division of Ser. No. 73,836, Sep. 10, 1979, Pat. No. 4,268,633, which is a division of Ser. No. 898,241, Apr. 20, 1978, Pat. No. 4,199,534. This application Jan. 12, 1981, Ser. No. 224,430
Int. Cl.³ D06M *9/00, 13/32*; B32B *27/00*
U.S. Cl. 428—253 2 Claims

4,335,179
IMPREGNATED HIGH VOLTAGE SPACERS
Morris A. Mendelsohn, Wilkins Township, Allegheny County, and Francis W. Navish, East Pittsburgh, both of Pa., assignors to Westinghouse Electric Corp., Pittsburgh, Pa.
Filed Feb. 2, 1981, Ser. No. 230,489
Int. Cl.³ B32B *7/00*
U.S. Cl. 428—273 12 Claims

4,335,180
MICROWAVE CIRCUIT BOARDS
G. Robert Traut, South Killingly, Conn., assignor to Rogers Corporation, Rogers, Conn.
Continuation-in-part of Ser. No. 972,994, Dec. 26, 1978, abandoned. This application Dec. 8, 1980, Ser. No. 213,876
Int. Cl.³ B32B *27/00*
U.S. Cl. 428—303 14 Claims

4,335,181
MICROWAVEABLE HEAT AND GREASE RESISTANT CONTAINERS
John P. Marano, Jr., Princeton, and Maya S. Farag, North Brunswick, both of N.J., assignors to Mobil Oil Corporation, New York, N.Y.
Filed Jul. 1, 1980, Ser. No. 164,993
Int. Cl.³ B32B *5/18, 7/00, 27/00*
U.S. Cl. 428—319.3 7 Claims

4,335,182
METHOD OF PRODUCING A MOLDED COMPOSITE FOAM BODY PROVIDED WITH A COVER LAYER AND THE RESULTANT PRODUCT
Konrad Brand, Hoehenkirchen, and Dieter Franz, Jettenbach, both of Fed. Rep. of Germany, assignors to Messerschmitt-Boelkow-Blohm Gesellschaft mit beschraenkter Haftung, Munich, Fed. Rep. of Germany
Filed Jan. 13, 1981, Ser. No. 224,658
Claims priority, application Fed. Rep. of Germany, Jan. 25, 1980, 3002584
Int. Cl.³ B29D *27/00*
U.S. Cl. 428—319.3 4 Claims

4,335,183
MAGNETIC RECORDING MEDIUM AND METHOD OF FABRICATING IT
Hiroshi Hosaka, Tokyo, Japan, assignor to Tokyo Magnetic Printing Co., Ltd., Japan
Filed Apr. 27, 1981, Ser. No. 257,944
Int. Cl.³ B05D *3/06*
U.S. Cl. 428—336 8 Claims

4,335,184
RECORDING PAPER
Shigehiko Miyamoto, Kamagaya, and Yoshinobu Watanabe, Matsudo, both of Japan, assignors to Mitsubishi Paper Mills, Ltd., Tokyo, Japan
Filed Oct. 14, 1980, Ser. No. 196,560
Claims priority, application Japan, Oct. 15, 1979, 54-132542
Int. Cl.³ B41M *5/00*; G01D *15/34*
U.S. Cl. 428—342 8 Claims

4,335,185
INDIGO-DYEABLE POLYESTER FIBERS
Robert L. Adelman, and John J. P. Turner, both of Wilmington, Del., assignors to E. I. Du Pont de Nemours and Company, Wilmington, Del.
Filed Dec. 29, 1980, Ser. No. 220,809
Int. Cl.³ D02G *3/00*
U.S. Cl. 428—361 4 Claims

4,335,186
CHEMICALLY MODIFIED ASPHALT COMPOSITIONS
Alfred Marzocchi; Michael G. Roberts, and Charles E. Bolen, all of Newark, Ohio, assignors to Owens-Corning Fiberglas Corporation, Toledo, Ohio
Division of Ser. No. 852,898, Nov. 18, 1977, Pat. No. 4,166,752. This application May 18, 1979, Ser. No. 40,368
Int. Cl.³ C08L *95/00*; D02G *3/18, 3/36*
U.S. Cl. 428—375 3 Claims

4,335,187
METHOD FOR BONDING POLYCARBONATE TO METAL
Thomas G. Rukavina, Lower Burrell, and Alfred L. Maryland, Pittsburgh, both of Pa., assignors to PPG Industries, Inc., Pittsburgh, Pa.
Filed Mar. 2, 1981, Ser. No. 239,854
Int. Cl.³ B32B *27/36*
U.S. Cl. 428—412 10 Claims

4,335,188
LAMINATES
Keishiro Igi, Kurashiki, and Ishii Masao, Ibara, both of Japan, assignors to Kuraray Company, Limited, Kurashiki, Japan
Filed May 22, 1980, Ser. No. 152,320
Claims priority, application Japan, Jun. 7, 1979, 54/71867
Int. Cl.³ B32B *15/08*
U.S. Cl. 428—458 14 Claims

4,335,189
RESOLUTION STANDARD FOR SCANNING ELECTRON MICROSCOPE COMPRISING PALLADIUM SPINES ON A METAL SUBSTRATE
Carmelo F. Aliotta, Beacon, and Morris Anschel, Carmel, both of N.Y., assignors to International Business Machines Corp., Armonk, N.Y.
Filed Jul. 28, 1980, Ser. No. 172,577
Int. Cl.³ H01F *1/00*; G01N *31/00*
U.S. Cl. 428—611 5 Claims

4,335,190
THERMAL BARRIER COATING SYSTEM HAVING IMPROVED ADHESION
Robert C. Bill, Rocky River, and James S. Sovey, Strongsville, both of Ohio, assignors to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration, Washington, D.C.
Filed Jan. 28, 1981, Ser. No. 229,233
Int. Cl.³ B32B *15/04*; B21D *39/00*
U.S. Cl. 428—623 10 Claims

4,335,191
LITHIUM CELLS
Emanuel Peled, Even Yehuda, Israel, assignor to Tadiran Israel Electronics Industries Ltd., Tel-Aviv, Israel
Filed Jul. 28, 1980, Ser. No. 172,688
Int. Cl.³ H01M *4/00*
U.S. Cl. 429—94 5 Claims

4,335,192
METHOD OF PREPARING A SINTERED IRON ELECTRODE
Antony Oliapuram, Frankfurt, Fed. Rep. of Germany, assignor to Varta Batterie A.G., Hanover, Fed. Rep. of Germany
Filed Oct. 15, 1980, Ser. No. 197,216
Claims priority, application Fed. Rep. of Germany, Oct. 16, 1979, 2941765
Int. Cl.³ H01M *4/26, 4/52*
U.S. Cl. 429—221 14 Claims

4,335,193
MICROPOROUS FILM, PARTICULARLY BATTERY SEPARATOR, AND METHOD OF MAKING
Yoshinao Doi, Kanagawa; Shigeo Kaneko, Tokyo; Takeo Hanamura, Kanagawa; Osamu Fujii, Tokyo; Katsumi Yoshitake; Tetsuhiko Hirata, both of Kanagawa, and Yasuhiro Tanabe, Shizuoka, all of Japan, assignors to Asahi Kasei Kogyo Kabushiki Kaisha, Osaka, Japan
Continuation of Ser. No. 694,173, Jun. 9, 1976, abandoned. This application Feb. 28, 1979, Ser. No. 16,176
Claims priority, application Japan, Jun. 18, 1975, 50/73031
Int. Cl.³ H01M *2/16*
U.S. Cl. 429—251 29 Claims

4,335,194
TWO COLOR ELECTROPHOTOGRAPHIC PROCESS AND MATERIAL
Katsuo Sakai, Tokyo, Japan, assignor to Ricoh Company, Ltd., Tokyo, Japan
Filed Feb. 15, 1979, Ser. No. 12,571
Claims priority, application Japan, Feb. 20, 1978, 53-18754; Apr. 25, 1978, 53-49671; Nov. 28, 1978, 53-146998; Nov. 28, 1978, 53-146999
Int. Cl.³ G03G *13/01, 13/22*
U.S. Cl. 430—42 21 Claims

4,335,195
ELECTROPHOTOSENSITIVE ELEMENT HAS RESIN ENCAPSULATED CDS PARTICLES IN BINDING RESIN
Yuji Nishigaki, Yokohama, and Hirokuni Kawashima, Sakurashin, both of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan
Filed Aug. 4, 1980, Ser. No. 175,021
Claims priority, application Japan, Aug. 10, 1979, 54-102488
Int. Cl.³ G03G *5/087*
U.S. Cl. 430—94 2 Claims

4,335,196
ELECTROSTATIC IMAGE DEVELOPING AND TRANSFER METHOD USES SINGLE COMPONENT MAGNETIC DEVELOPER
Yuzo Ohmuro, Machida; Nin-ichi Kamogawa, Tokyo; Shigeru Uetake, Sayama, and Yoshio Yamazaki, Hino, all of Japan, assignors to Konishiroku Photo Industry Co., Ltd., Tokyo, Japan
Continuation of Ser. No. 25,783, Apr. 2, 1979, Pat. No. 4,295,427, which is a continuation of Ser. No. 829,795, Sep. 1, 1977, abandoned. This application Nov. 28, 1980, Ser. No. 211,344
Int. Cl.³ G03G *13/09*
U.S. Cl. 430—122 2 Claims

4,335,197
PHOTOIMAGING PROCESS
William J. Chambers, and Louis Plambeck, Jr., both of Wilmington, Del., assignors to E. I. Du Pont de Nemours and Company, Wilmington, Del.
Filed Nov. 25, 1980, Ser. No. 210,232
Int. Cl.³ G03C *5/00*
U.S. Cl. 430—271 17 Claims

4,335,198
PROCESS FOR RECORDING
Hiroshi Hanada, Yokohama; Masanao Kasai; Hitoshi Hanadate, both of Tokyo, and Yoko Oikawa, Kawasaki, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan
Division of Ser. No. 858,161, Dec. 6, 1977, abandoned, which is a continuation of Ser. No. 579,700, May 21, 1975, abandoned. This application May 14, 1979, Ser. No. 38,840
Claims priority, application Japan, May 25, 1974, 49-59215; Aug. 6, 1974, 49-90568; Sep. 20, 1974, 49-108357
Int. Cl.³ B05D *3/02, 3/06;* G01D *15/10*
U.S. Cl. 430—348 10 Claims

4,335,199
HIGH CONTRAST BY IMAGEWISE IODIDE INFECTION IN A MIXED SILVER HALIDE SYSTEM
daniel J. Mickewich, Arden, Del.; John R. Shock, Plainsboro, N.J., and Daniel F. Juers, Fairport, N.Y., assignors to E. I. Du Pont de Nemours and Company, Wilmington, Del.
Filed Feb. 19, 1980, Ser. No. 122,502
Int. Cl.³ G03C *1/84, 5/24*
U.S. Cl. 430—434 13 Claims

4,335,200
SILVER HALIDE PHOTOGRAPHIC MATERIALS
Minoru Ohashi, and Katsuaki Iwaosa, both of Nagaokakyo, Japan, assignors to Mitsubishi Paper Mills, Ltd., Tokyo, Japan
Filed Aug. 28, 1981, Ser. No. 297,419
Claims priority, application Japan, Oct. 30, 1980, 55/152772
Int. Cl.³ G03C *1/34*
U.S. Cl. 430—446 4 Claims

4,335,201
ANTISTATIC COMPOSITIONS AND ELEMENTS CONTAINING SAME
Donald N. Miller, Penfield, and Richard A. Kydd, Rochester, both of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.
Filed Nov. 24, 1980, Ser. No. 209,554
Int. Cl.³ G03C *1/84, 1/38;* C09K *3/16*
U.S. Cl. 430—527 19 Claims

4,335,202
TETRAAZAUNDECANE AND COMPLEXES AS SENSITIZERS FOR SILVER HALIDE EMULSION
Rolf Hengel, Heilbronn, Fed. Rep. of Germany, and David F. Eaton, Wilmington, Del., assignors to E. I. Du Pont de Nemours and Company, Wilmington, Del.
Filed Aug. 12, 1981, Ser. No. 292,261
Int. Cl.³ G03L *1/28*
U.S. Cl. 430—604 10 Claims

4,335,203
METHOD FOR IDENTIFYING POTENTIAL CONTRAST MEDIA REACTORS
Elliott C. Lasser, La Jolla, Calif., assignor to The Regents of the University of California, Berkeley, Calif.
Filed Jul. 10, 1980, Ser. No. 167,278
Int. Cl.³ C12Q *1/38*
U.S. Cl. 435—23 4 Claims

4,335,204
EASILY SPLIT SUBSTRATES FOR THE QUANTIFICATION OF PROTEASES
Karl G. Claeson, Lidingö; Leif E. Aurell, Särö; Leif R. Simonsson, Hising Backa, and Salo Arielly, Kungsbacka, all of Sweden, assignors to Kabi AB, Stockholm, Sweden
Division of Ser. No. 7,447, Jan. 29, 1979, Pat. No. 4,279,810. This application Mar. 25, 1981, Ser. No. 247,488
Claims priority, application Sweden, Feb. 7, 1978, 7801373
Int. Cl.³ C12Q *1/38*
U.S. Cl. 435—23 3 Claims

4,335,205
LOW PROTEIN DEGRADATION PRODUCT BASAL MEDIUM FOR IDENTIFICATION OF NON-FERMENTATIVE GRAM-NEGATIVE BACILLI AND OTHER MICROORGANISMS
James R. Greenwood, 1275 Barry Ave., Apt. #4, Los Angeles, Calif. 90025
Filed Apr. 6, 1979, Ser. No. 27,843
Int. Cl.³ C12Q *1/04*
U.S. Cl. 435—34 11 Claims

4,335,206
APPARATUS AND PROCESS FOR MICROBIAL DETECTION AND ENUMERATION
Judd R. Wilkins, and David C. Grana, both of Hampton, Va., assignors to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration, Washington, D.C.
Filed Feb. 19, 1981, Ser. No. 235,796
Int. Cl.³ C12Q *1/04*
U.S. Cl. 435—34 9 Claims

4,335,207
PROCESS FOR THE PRODUCTION OF HIGH FRUCTOSE SYRUPS AND ETHANOL
Robert E. Heady, Park Forest, Ill., assignor to CPC International Inc., Englewood Cliffs, N.J.
Filed Jun. 3, 1980, Ser. No. 156,152
Int. Cl.³ C12P *7/14, 19/02, 19/04*
U.S. Cl. 435—94 14 Claims

4,335,208
SACCHARIFICATION OF STARCH HYDROLYSATES
Barrie E. Norman, Farum, Denmark, assignor to Novo Industri A/S, Denmark
Filed Mar. 11, 1980, Ser. No. 129,314
Int. Cl.³ C12P *19/16, 19/20;* C12R *1/38, 1/685*
U.S. Cl. 435—96 8 Claims

4,335,209
PROCESS FOR PREPARATION OF L-TRYPTOPHAN BY ENZYME
Yoshiyuki Asai, Yokohama; Masao Shimada, Yamato, and Kenji Soda, Uji, all of Japan, assignors to Mitsui Toatsu Chemicals, Inc., Tokyo, Japan
Filed Apr. 25, 1980, Ser. No. 145,267
Claims priority, application Japan, May 9, 1979, 54-55645; Jun. 26, 1979, 54-79619; Mar. 24, 1980, 55-36197
Int. Cl.³ C12P *13/22*
U.S. Cl. 435—108 10 Claims

4,335,210
METHOD OF PRODUCING L-CYSTEINE
Alton Meister, New York, and Joanne M. Williamson, Roosevelt Island, both of N.Y., assignors to Cornell Research Foundation, Ithaca, N.Y.
Filed Feb. 11, 1981, Ser. No. 233,564
Int. Cl.³ C12P *13/12*
U.S. Cl. 435—113 1 Claim

4,335,211
PROCESS FOR PRODUCING OPTICALLY ACTIVE CEPHALOSPORIN ANALOGS
Yukio Hashimoto, Yamato; Seigo Takasawa, Hadano; Tadashi Hirata, Yokohama; Ikuo Matsukuma, Yokkaichi, and Shigeo Yoshiie, Sakai, all of Japan, assignors to Kyowa Hakko Kogyo Co., Ltd., Tokyo, Japan
Filed Nov. 13, 1980, Ser. No. 206,556
Claims priority, application Japan, Nov. 14, 1979, 54-146489
Int. Cl.³ C12P *17/18*
U.S. Cl. 435—119 4 Claims

4,335,212
FERMENTATION PROCESS FOR (5R,6S,8S)-3-(2-AMINOETHYLTHIO)-6-(1-HYDROXYETHYL)-7-OXO-1-AZABICYCLO[3.2.0]HEPT-2-ENE-2-CARBOXYLIC ACID
Kenneth E. Wilson, Westfield, N.J., and August J. Kempf, Staten Island, N.Y., assignors to Merck & Co., Inc., Rahway, N.J.
Filed Jun. 17, 1981, Ser. No. 274,702
Int. Cl.³ C12P *17/18, 17/10*
U.S. Cl. 435—119 2 Claims

4,335,213
PROCESS FOR THE PREPARATION OF GALACTOSE OXIDASE
Osamu Terada, and Kazuo Aisaka, both of Machida, Japan, assignors to Kyowa Hakko Kogyo Co., Ltd., Tokyo, Japan
Filed Jul. 2, 1980, Ser. No. 164,523
Claims priority, application Japan, Jul. 5, 1979, 54-84407
Int. Cl.³ C12N *9/04*
U.S. Cl. 435—190 6 Claims

4,335,214
PROCESS FOR PURIFYING PARTICLES OF BIOLOGICAL ORIGIN, PARTICULARLY THE SURFACE ANTIGEN OF THE VIRUS OF HEPATITIS B (AGHBS)
Philippe J. Adamowicz, Garches; Alberte Platel nee Bonnet, La Garenne Colombes, and Ludwig Muller, Plessis Robinson, all of France, assignors to Institut Pasteur, Paris, France
Filed Dec. 5, 1980, Ser. No. 213,315
Claims priority, application France, Dec. 7, 1979, 79 30135
Int. Cl.³ A61K *39/12;* C12K *7/00*
U.S. Cl. 435—239 16 Claims

4,335,215
METHOD OF GROWING ANCHORAGE-DEPENDENT CELLS
William R. Tolbert, Manchester; Mary M. Hitt, St. Louis; Joseph Feder, University City, and Richard C. Kimes, Creve Coeur, all of Mo., assignors to Monsanto Company, St. Louis, Mo.
Filed Aug. 27, 1980, Ser. No. 181,582
Int. Cl.³ C12N *5/02;* C12M *3/02, 1/24;* C12P *1/00*
U.S. Cl. 435—241 10 Claims

4,335,216
LOW TEMPERATURE FIRED DIELECTRIC CERAMIC COMPOSITION AND METHOD OF MAKING SAME
Charles E. Hodgkins, Lewiston, and Mark J. Giermek, Tonawanda, both of N.Y., assignors to TAM Ceramics, Inc., Niagara Falls, N.Y.
Filed May 1, 1981, Ser. No. 259,520
Int. Cl.³ C04B *35/00, 35/46*
U.S. Cl. 501—32 14 Claims

4,335,217
SIC-SI_3N_4 COMPOSITE SYSTEM FOR SPECIAL HEAT-RESISTING CERAMIC MATERIALS AND ITS FABRICATION METHOD
Tokuaki Hatta; Haruyuki Ueno; Yuji Katsura; Kazushige Fukuda, and Hiroshi Kubota, all of Kitakyushu, Japan, assignors to Kurosaki Refractories Co., Ltd., Fukuoka, Japan
Filed Nov. 26, 1980, Ser. No. 210,647
Claims priority, application Japan, Nov. 30, 1979, 54-156032
Int. Cl.³ C04B *35/56, 35/58*
U.S. Cl. 501—92 11 Claims

4,335,218
PROCESS FOR THE PREPARATION OF A FOAM-CORED LAMINATE HAVING METAL FACERS AND RIGID POLYISOCYANURATE FOAM CORE PREPARED IN THE PRESENCE OF A DIPOLAR APROTIC ORGANIC SOLVENT
David T. DeGuiseppi, Hamden, Conn., assignor to The Upjohn Company, Kalamazoo, Mich.
Filed Oct. 27, 1980, Ser. No. 201,137
Int. Cl.³ C08G *18/14*
U.S. Cl. 521—99 6 Claims

4,335,219
PROCESS FOR REACTING ISOCYANATES IN THE PRESENCE OF QUATERNARY AMMONIUM ZWITTERIONS
Donald H. Clarke, Essexville; George J. Pomranky, and Donald L. Schmidt, both of Midland, all of Mich., assignors to The Dow Chemical Company, Midland, Mich.
Filed Apr. 6, 1981, Ser. No. 251,628
Int. Cl.³ C08G *18/18*
U.S. Cl. 521—128 12 Claims

4,335,220
SEQUESTERING AGENTS AND COMPOSITIONS PRODUCED THEREFROM
Charles H. Coney, Kingsport, Tenn., assignor to Eastman Kodak Company, Rochester, N.Y.
Filed Apr. 6, 1981, Ser. No. 251,646
Int. Cl.³ C08J *3/02*; C08L *35/02*
U.S. Cl. 523—414 23 Claims

4,335,221
PREPARATION OF MIXTURES OF LINEAR THREE-BLOCK COPOLYMERS, AND MOLDINGS PRODUCED THEREFROM
Karl Gerberding, Wachenheim, Fed. Rep. of Germany, assignor to BASF Aktiengesellschaft, Fed. Rep. of Germany
Filed Sep. 9, 1980, Ser. No. 185,531
Claims priority, application Fed. Rep. of Germany, Oct. 9, 1979, 2940861
Int. Cl.³ C08F *257/02*
U.S. Cl. 525—89 4 Claims

4,335,222
ADHESIVE SYSTEMS AND LAMINATES
Darrell A. Klemme, South Lyndeboro, N.H., assignor to USM Corporation, Farmington, Conn.
Filed Jul. 18, 1980, Ser. No. 170,071
Int. Cl.³ C08L *63/00*
U.S. Cl. 523—454 13 Claims

4,335,223
HIGH IMPACT MOLDING COMPOSITIONS
Paul W. Flood, Lake Hopatcong; Charles D. Mason, Chatham Township, Morris County, and Stephen R. Schulze, West Caldwell, all of N.J., assignors to Allied Corporation, Morris Township, Morris County, N.J.
Continuation-in-part of Ser. No. 46,536, Jun. 7, 1979, abandoned, which is a continuation-in-part of Ser. No. 914,705, Jun. 12, 1978, abandoned. This application Nov. 21, 1980, Ser. No. 209,182
Int. Cl.³ C08L *77/00*
U.S. Cl. 525—179 32 Claims

4,335,224
POLYMER COMPOSITIONS COMPRISING ETHYLENE POLYMER BLENDS
Kazuo Matsuura, Tokyo; Noboru Yamaoka; Sinichi Yanahashi, both of Yokohama; Katumi Usui, Yokosuka, and Mituji Miyoshi, Kanagawa, all of Japan, assignors to Nippon Oil Company, Limited, Tokyo, Japan
Filed Mar. 2, 1981, Ser. No. 239,555
Claims priority, application Japan, Feb. 29, 1980, 55/24136
Int. Cl.³ C08L *23/06, 23/08*
U.S. Cl. 525—240 6 Claims

4,335,225
ELASTOMERIC POLYPROPYLENE
John W. Collette, Wilmington, Del., and Charles W. Tullock, Landenburg, Pa., assignors to E. I. Du Pont de Nemours and Company, Wilmington, Del.
Continuation of Ser. No. 917,282, Jun. 20, 1978, abandoned, which is a continuation-in-part of Ser. No. 814,878, Jul. 12, 1977, abandoned. This application Mar. 3, 1981, Ser. No. 240,138
Int. Cl.³ C08F *10/06*
U.S. Cl. 525—240 15 Claims

4,335,226
ADSORBENT FOR THE AFFINITY-SPECIFIC SEPARATION OF MACROMOLECULAR MATERIALS
Werner Müller, Bielefeld, and Hans Bünemann, Steinhagen, both of Fed. Rep. of Germany, assignors to Boehringer Mannheim GmbH, Mannheim-Waldhof, Fed. Rep. of Germany
Filed Feb. 24, 1978, Ser. No. 880,914
Claims priority, application Fed. Rep. of Germany, Mar. 2, 1977, 2709094
Int. Cl.³ C08F *279/00*
U.S. Cl. 525—281 13 Claims

4,335,227
RUBBER COMPOSITIONS AND METHOD OF VULCANIZING SAME IN ULTRAHIGH-FREQUENCY FIELD
Ruediger F. Bender, Marl, Fed. Rep. of Germany, and Gerardus J. van Veersen, Gouda, Netherlands, assignors to Emery Industries, Inc., Cincinnati, Ohio
Filed Jul. 25, 1980, Ser. No. 172,349
Claims priority, application Netherlands, Aug. 2, 1979, 7905944
Int. Cl.³ C08J *3/28*
U.S. Cl. 525—333 13 Claims

4,335,228
ISOCYANATE BLOCKED IMIDAZOLES AND IMIDAZOLINES FOR EPOXY POWDER COATING
Burton D. Beitchman, Springfield, and Philip J. Zaluska, Schnecksville, both of Pa., assignors to Air Products and Chemicals, Inc., Allentown, Pa.
Filed Feb. 27, 1978, Ser. No. 881,339
Int. Cl.³ C08G *18/58, 59/40*
U.S. Cl. 525—528 16 Claims

4,335,229
PROCESS FOR POLYMERIZING AN α-OLEFIN
Hisaya Sakurai; Yoshihiko Katayama; Tadashi Ikegami, and Masayasu Furusato, all of Kurashiki, Japan, assignors to Asahi Kasei Kogyo Kabushiki Kaisha, Osaka, Japan
Filed Aug. 13, 1980, Ser. No. 177,546
Claims priority, application Japan, Sep. 25, 1979, 54-123015; Sep. 28, 1979, 54-124912
Int. Cl.³ C08F *4/64, 10/00*
U.S. Cl. 526—122 40 Claims

4,335,230
NOVEL COMPOSITIONS COMPRISING ASYMMETRICAL PEROXYDICARBONATES AND METHODS FOR THEIR USE
James R. Kolczynski, Clarence Center, and Gerald A. Schultz, Lockport, both of N.Y., assignors to Akzona Incorporated, Asheville, N.C.
Division of Ser. No. 107,999, Dec. 26, 1979, Pat. No. 4,269,726. This application Dec. 3, 1980, Ser. No. 212,941
Int. Cl.[3] C08F *4/38*
U.S. Cl. 526—228 4 Claims

4,335,231
SULFUR CURABLE MILLABLE POLYURETHANE GUM
Ajaib Singh, Shelton, Conn., assignor to Uniroyal, Inc., New York, N.Y.
Filed Apr. 3, 1981, Ser. No. 251,007
Int. Cl.[3] C08G *18/67*
U.S. Cl. 528—49 8 Claims

4,335,232
OPTICALLY ANISOTROPIC MELT FORMING POLYESTERS
Robert S. Irwin, Wilmington, Del., assignor to E. I. Du Pont de Nemours and Company, Wilmington, Del.
Filed Jul. 7, 1981, Ser. No. 281,200
Int. Cl.[3] C08G *63/02, 63/18*
U.S. Cl. 528—128 9 Claims

4,335,233
POLYPHENYLENE ETHER COPOLYMERS
Akiyoshi Somemiya, Akashi; Shunitsu Miyashita, and Masaaki Azuma, both of Kobe, all of Japan, assignors to Kanegafuchi Kagaku Kogyo Kabushiki Kaisha, Osaka, Japan
Filed Mar. 30, 1981, Ser. No. 249,996
Claims priority, application Japan, Mar. 31, 1980, 55/42171
Int. Cl.[3] C08G *65/44*
U.S. Cl. 528—211 5 Claims

4,335,234
USE OF MANGANESE CHELATE TO OXIDATIVELY COUPLE PHENOLIC COMPOUND IN A SELF-PRECIPITATING SYSTEM
Walter K. Olander, Mt. Vernon, Ind., and Otto S. Zamek, Schenectady, N.Y., assignors to General Electric Company, Pittsfield, Mass.
Filed Oct. 31, 1979, Ser. No. 89,999
Int. Cl.[3] C08G *65/44*
U.S. Cl. 528—214 17 Claims

4,335,235
CRYSTALLINE CO-POLYBENZYLS PREPARATION
John E. Chandler, Stamford, Conn., and Robert W. Lenz, Amherst, Mass., assignors to Exxon Research & Engineering Co., Florham Park, N.J.
Division of Ser. No. 25,225, Mar. 29, 1979, Pat. No. 4,255,562. This application Oct. 20, 1980, Ser. No. 198,402
Int. Cl.[3] C08G *61/02*
U.S. Cl. 528—397 1 Claim

4,335,236
α-D-GALACTURONIDE DERIVATIVES
Shinji Tsuyumu, and Keiichi Ota, both of Shizuoka, Japan, assignors to Otsuka Pharmaceutical Co., Ltd., Japan
PCT No. PCT/JP79/00155, § 371 Date Feb. 11, 1980, § 102(e) Date Feb. 11, 1980, PCT Pub. No. WO80/00082, PCT Pub. Date Jan. 24, 1980
PCT Filed Jun. 19, 1979, Ser. No. 192,513
Claims priority, application Japan, Jun. 21, 1978, 53/74093; Jun. 21, 1978, 53/74094; Jul. 17, 1978, 53/86071; Jul. 17, 1978, 53/86072
Int. Cl.[3] C07H *15/04, 5/10*
U.S. Cl. 536—18.2 1 Claim

4,335,237
ADIABATIC POLYMERIZATION OF ACRYLAMIDE IN THE PRESENCE OF SODIUM SULFATE DECAHYDRATE
Edward G. Ballweber, Glenwood, Ill., assignor to Nalco Chemical Company, Oak Brook, Ill.
Filed Jul. 28, 1980, Ser. No. 173,108
Int. Cl.[3] C08F *2/00, 20/56*
U.S. Cl. 526—234 2 Claims

4,335,238
FLUOROPOLYMER HEXAFLUOROPROPENE, TETRAFLUORETHENE AND 1,1-DIFLUOROETHENE
Albert L. Moore; Clare A. Stewart, Jr., and Isadore Swerlick, all of Wilmington, Del., assignors to E. I. Du Pont de Nemours and Company, Wilmington, Del.
Filed Oct. 6, 1980, Ser. No. 193,375
Int. Cl.[3] C08F *214/28*
U.S. Cl. 526—254 3 Claims

4,335,239
POLYRIBONUCLEOTIDES CAPABLE OF PROMOTING THE GENESIS OF LEUCOCYTES AND BLOOD PLATELETS
Mirko Beljanski, 46 Bd de Port Royal, Paris, France (75005)
Division of Ser. No. 800,435, May 25, 1977, Pat. No. 4,190,649. This application Jul. 3, 1979, Ser. No. 54,960
Claims priority, application France, Jun. 3, 1976, 76 16875
Int. Cl.[3] C07H *21/02*
U.S. Cl. 536—27 2 Claims

4,335,240
PROCESS FOR CYCLIZATION
Stjepan Kukolja, Carmel, and Janice L. Pfeil, Indianapolis, both of Ind., assignors to Eli Lilly and Company, Indianapolis, Ind.
Division of Ser. No. 137,862, Apr. 7, 1980, Pat. No. 4,293,493. This application May 18, 1981, Ser. No. 264,263
Int. Cl.[3] C07D *498/02*
U.S. Cl. 544—90 26 Claims

4,335,241
4-α-AMINO-ARYLMETHYL-6-METHYL-1,3-DIHYDRO-FURO[3,4-C]PYRIDIN-7-OLS
Walter Boell, Dannstadt-Schauernheim, Fed. Rep. of Germany, assignor to BASF Aktiengesellschaft, Fed. Rep. of Germany
Filed Feb. 23, 1981, Ser. No. 236,904
Claims priority, application Fed. Rep. of Germany, Mar. 6, 1980, 3008522
Int. Cl.[3] C07D *491/048*
U.S. Cl. 544—127 1 Claim

4,335,242
TRIAZINE DERIVATIVES
Hartmut Wiezer, Gersthofen, and Gerhard Pfahler, Augsburg, both of Fed. Rep. of Germany, assignors to Hoechst Aktiengesellschaft, Frankfurt, Fed. Rep. of Germany
Filed Aug. 13, 1980, Ser. No. 177,861
Claims priority, application Fed. Rep. of Germany, Aug. 16, 1979, 2933078
Int. Cl.³ C07D *251/50, 251/70*
U.S. Cl. 544—198 2 Claims

4,335,243
OXIMES OF 11-(3-OXOOCTYL)-HEXAHYDRO-2,6-METHANO-3-BENZAZOCINES
William F. Michne, Poestenkill, N.Y., assignor to Sterling Drug Inc., New York, N.Y.
Division of Ser. No. 147,084, May 7, 1980, Pat. No. 4,296,238, which is a division of Ser. No. 9,594, Feb. 5, 1979, Pat. No. 4,255,579, which is a continuation-in-part of Ser. No. 877,166, Feb. 13, 1978, Pat. No. 4,180,667, which is a continuation-in-part of Ser. No. 741,227, Nov. 12, 1976, Pat. No. 4,100,164, which is a continuation-in-part of Ser. No. 695,977, Jun. 14, 1976, abandoned, which is a continuation-in-part of Ser. No. 576,313, May 12, 1976, which is a continuation-in-part of Ser. No. 471,571, May 20, 1974, Pat. No. 3,932,422. This application Mar. 12, 1981, Ser. No. 243,031
Int. Cl.³ C07D *221/26*
U.S. Cl. 546—97 4 Claims

4,335,244
MONOLACTATE SALTS OF 4'-(9-ACRIDINYLAMINO)METHANESULFON-M-ANISIDIDE
Murray A. Kaplan, Syracuse, and Alphonse P. Granatek, Baldwinsville, both of N.Y., assignors to Bristol-Myers Company, New York, N.Y.
Continuation-in-part of Ser. No. 99,163, Nov. 30, 1979, abandoned. This application May 23, 1980, Ser. No. 150,401
Int. Cl.³ C07D *219/10*; A61K *31/47*
U.S. Cl. 546—106 7 Claims

4,335,245
PROCESS FOR PREPARING CERTAIN PYRIDINE 2,3,6-TRIONES
William E. Long, Brentwood, England, assignor to Ciba-Geigy AG, Basel, Switzerland
Division of Ser. No. 123,867, Feb. 22, 1980, Pat. No. 4,288,598. This application Feb. 26, 1981, Ser. No. 238,346
Claims priority, application United Kingdom, Mar. 26, 1979, 7910539
Int. Cl.³ C07D *213/56, 213/57*
U.S. Cl. 546—288 6 Claims

4,335,246
SUBSTITUTED ARYLAMINE INTERMEDIATES FOR DYES
Francesco De Feo, Milan; Giovanni Burei, Seregno, and Roberto Cipolli, Novara, all of Italy, assignors to Aziende Colori Nazionali Affini ACNA S.p.A., Milan, Italy
Division of Ser. No. 934,676, Aug. 18, 1978, abandoned. This application Sep. 24, 1979, Ser. No. 78,378
Claims priority, application Italy, Aug. 23, 1977, 26872 A/77
Int. Cl.³ C07D *213/74*; C07C *125/065, 143/78*
U.S. Cl. 546—309 11 Claims

4,335,247
NOVEL NITROSOUREA DERIVATIVES AND PROCESS FOR THEIR PRODUCTION
Kichitaro Takatori, Nagoya; Takashi Yamaguchi, Urawa, and Masahiko Nagakura, Sayama, all of Japan, assignors to Kowa Co., Ltd., Nagoya, Japan
Filed Feb. 23, 1981, Ser. No. 237,273
Claims priority, application Japan, Feb. 28, 1980, 55-24491
Int. Cl.³ C07C *127/1*
U.S. Cl. 548—140 2 Claims

4,335,248
FLUORINATED POLYENES
Ka-Kong Chan, Hopatcong, and Beverly A. Pawson, Verona, both of N.J., assignors to Hoffmann-La Roche Inc., Nutley, N.J.
Division of Ser. No. 149,389, May 13, 1980, Pat. No. 4,299,995, which is a division of Ser. No. 37,803, May 10, 1979, Pat. No. 4,231,944, which is a division of Ser. No. 936,466, Aug. 24, 1978, Pat. No. 4,171,318, which is a continuation-in-part of Ser. No. 809,738, Jun. 24, 1977, Pat. No. 4,137,246, which is a continuation-in-part of Ser. No. 722,939, Sep. 13, 1976, abandoned, which is a continuation-in-part of Ser. No. 632,028, Nov. 14, 1975, abandoned. This application Jun. 29, 1981, Ser. No. 278,224
Int. Cl.³ C07D *333/16, 307/12*; A61K *31/38, 31/34*
U.S. Cl. 549—78 6 Claims

4,335,249
HERBICIDAL DIPHENYL ETHERS, SULFIDES, SULFOXIDES AND SULFONES
Wayne O. Johnson, Warminster, and Roy Y. Yih, Doylestown, both of Pa., assignors to Rohm and Haas Company, Philadelphia, Pa.
Continuation-in-part of Ser. No. 610,481, Sep. 3, 1975, abandoned. This application Jul. 30, 1976, Ser. No. 710,074
Int. Cl.³ C07C *69/76*
U.S. Cl. 560—11 19 Claims

4,335,250
COMPOUND WITH IMMUNOPOTENTIATING ACTIVITY AND PRODUCTION AND USES THEREOF
Hamao Umezawa; Tomio Takeuchi, both of Tokyo; Takaaki Aoyagi, Fujisawa; Masaaki Ishizuka, Tokyo; Hajime Morishima, Tokyo; Takuzo Yamamoto, Tokyo; Junji Yoshizawa, Tokyo; Masaaki Hosoi, Kawasaki, and Ikuo Matsumoto, Tokyo, all of Japan, assignors to Banyu Pharmaceutical Co., Ltd., Tokyo, Japan
Filed Jul. 12, 1979, Ser. No. 57,014
Claims priority, application Japan, Jul. 17, 1978, 53/86178
Int. Cl.³ C07C *69/88*
U.S. Cl. 560—67 7 Claims

4,335,251
PHENYL-I-PROPIONIC ACID ESTERS AND PHARMACEUTICAL USE THEREOF
Kanji Noda, Chikushino; Akira Nakagawa; Yuji Ishikura, both of Tosu, and Hiroyuki Ide, Fukuoka, all of Japan, assignors to Hisamitsu Pharmaceutical Co. Inc., Saga, Japan
Continuation of Ser. No. 956,446, Nov. 1, 1978, abandoned, which is a continuation of Ser. No. 748,454, Dec. 8, 1976, abandoned. This application Aug. 5, 1980, Ser. No. 175,498
Int. Cl.³ C07B *69/76*
U.S. Cl. 560—105 6 Claims

4,335,252
INSECTICIDAL PYRETHROID ENANTIOMER PAIR
John F. Engel, Medina, N.Y., assignor to FMC Corporation, Philadelphia, Pa.
Continuation-in-part of Ser. No. 42,372, May 24, 1979, Pat. No. 4,263,319, which is a continuation of Ser. No. 927,198, Jul. 24, 1978, abandoned, and Ser. No. 870,973, Jan. 20, 1978, abandoned. This application Dec. 31, 1980, Ser. No. 221,581
The portion of the term of this patent subsequent to Apr. 21, 1998, has been disclaimed.
Int. Cl.³ A01N *53/00*; C07C *69/743*
U.S. Cl. 560—124 1 Claim

4,335,253
PREPARATION OF DIHALOVINYL COMPOUNDS
Petrus A. Kramer, Amsterdam, Netherlands, assignor to Shell Oil Company, Houston, Tex.
Filed May 22, 1981, Ser. No. 266,578
Claims priority, application United Kingdom, May 30, 1980, 8017697
Int. Cl.³ C07C *67/317, 45/65, 41/48*
U.S. Cl. 560—124 9 Claims

4,335,254
POLYMERIZABLE ACRYLOYLOXYARYLENESULFONAMIDES
John C. Wilson, and Paul D. Yacobucci, both of Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.
Division of Ser. No. 22,406, Mar. 21, 1979, Pat. No. 4,289,865. This application May 29, 1981, Ser. No. 268,547
Int. Cl.³ C07C *69/54, 69/653*
U.S. Cl. 560—138 3 Claims

4,335,255
ALKYL PERFLUORO (2-METHYL-5-OXO-3-OXAHEXANOATE)
Carl G. Krespan, Wilmington, Del., assignor to E. I. Du Pont de Nemours and Company, Wilmington, Del.
Filed Apr. 3, 1980, Ser. No. 136,991
Int. Cl.³ C07C *69/708, 69/716, 121/34*
U.S. Cl. 560—174 15 Claims

4,335,256
PROCESS FOR MANUFACTURING D,L-β-BENZOYLAMINO-ISOBUTYRIC ACID
Paolo de Witt, and Enrico Diamanti, both of Rome, Italy, assignors to Sigma-Tau Industrie Farmaceutiche Riunite S.p.A., Rome, Italy
Filed Nov. 16, 1978, Ser. No. 961,102
Claims priority, application Italy, Nov. 30, 1977, 52004 A/77
Int. Cl.³ C07C *101/12*
U.S. Cl. 562—450 7 Claims

4,335,257
PREPARATION OF THE CALCIUM SALT OF ALPHA-HYDROXY-GAMMA-METHYLMERCAPTOBUTYRIC ACID
Earl W. Cummins; Steven I. Gleich, and Robert M. Vigilant, all of Wilmington, Del., assignors to E. I. Du Pont De Nemours and Company, Wilmington, Del.
Filed Sep. 5, 1980, Ser. No. 184,210
Int. Cl.³ C07C *149/20*
U.S. Cl. 562—581 14 Claims

4,335,258
PROCESS FOR PRODUCING METHACRYLIC ACID
Takeru Onoda; Masayuki Otake, both of Yokohama, and Jutaro Yamaguchi, Yamato, all of Japan, assignors to Mitsubishi Chemical Industries, Ltd.
Filed Jan. 3, 1980, Ser. No. 109,219
Claims priority, application Japan, Jan. 16, 1979, 54-3488
Int. Cl.³ C07C *51/377, 57/05*
U.S. Cl. 562—599 3 Claims

4,335,259
QUATERNIZED POLYAMINES
Hans-Peter Baumann, Ettingen, Switzerland, assignor to Sandoz Ltd., Basel, Switzerland
Continuation-in-part of Ser. No. 50,881, Jun. 21, 1979, Pat. No. 4,297,296. This application Jan. 5, 1981, Ser. No. 222,483
Claims priority, application Switzerland, Jun. 26, 1978, 6933/78
Int. Cl.³ C07C *87/30*
U.S. Cl. 564—290 11 Claims

4,335,260
PROCESS FOR THE PREPARATION OF N-DI-N-PROPYL-2,6-DINITRO-4-TRIFLUOROMETHYLANILINE HAVING A LOW CONTENT OF NITROSAMINES
Mario Bornengo, Massa, and Sergio Bacciarelli, Orzonovo, both of Italy, assignors to Montedison S.p.A., Milan, Italy
Filed May 14, 1981, Ser. No. 263,508
Claims priority, application Italy, May 15, 1980, 22073 A/80
Int. Cl.³ C07C *85/04*
U.S. Cl. 564—406 1 Claim

4,335,261
PROCESS FOR PURIFYING MACROCYCLIC KETONES
Yoichiro Ueda, Ohimachi, Japan, assignor to Daicel Chemical Industries, Ltd., Osaka, Japan
Filed Jun. 17, 1981, Ser. No. 274,682
Claims priority, application Japan, Jul. 18, 1980, 55-98258
Int. Cl.³ C07C *45/83*
U.S. Cl. 568—366 9 Claims

4,335,262
PROCESS FOR THE PREPARATION OF MUSCONE
Karl H. Schulte-Elte, Onex/Ge; Joseph J. Becker, and Walter Schenk, both of Geneva, all of Switzerland, assignors to Firmenich SA, Geneva, Switzerland
Filed Sep. 3, 1980, Ser. No. 183,722
Claims priority, application Switzerland, Sep. 13, 1979, 8293/79
Int. Cl.³ C07C *45/57*
U.S. Cl. 568—361 1 Claim

4,335,263
PROCESS FOR PREPARING AROMATIC ALDEHYDES
Masayoshi Minai, Moriyama, Japan, assignor to Sumitomo Chemical Company, Limited, Osaka, Japan
Filed Dec. 19, 1980, Ser. No. 218,135
Claims priority, application Japan, Dec. 21, 1979, 54/167013
Int. Cl.³ C07C *45/43, 37/01*
U.S. Cl. 568—437 15 Claims

4,335,264
HIGH YIELD, LOW BYPRODUCT α, β-UNSATURATED ALDEHYDES FROM OLEFINS
Paul C. Yates, Wilmington, Del., assignor to E. I. Du Pont de Nemours and Company, Wilmington, Del.
Filed Jul. 7, 1976, Ser. No. 703,285
Int. Cl.³ C07C *45/34*
U.S. Cl. 568—479 32 Claims

ELECTRICAL

JUNE 15, 1982

4,335,265
ROBOT TAPPING ELECTRODE FOR ELECTRIC ARC FURNACES
Serge Roberge, Shawinigan Nord, and Jacques Normand, Shawinigan Sud, both of Canada, assignors to Gulf Canada Limited, Toronto, Canada
Filed Dec. 16, 1980, Ser. No. 216,886
Int. Cl.[3] C21B *11/10, 13/12*
U.S. Cl. 373—83 4 Claims

4,335,266
METHODS FOR FORMING THIN-FILM HETEROJUNCTION SOLAR CELLS FROM I-III-VI_2 CHALCOPYRITE COMPOUNDS, AND SOLAR CELLS PRODUCED THEREBY
Reid A. Mickelsen, Bellevue, and Wen S. Chen, Seattle, both of Wash., assignors to The Boeing Company, Seattle, Wash.
Filed Dec. 31, 1980, Ser. No. 221,761
Int. Cl.[3] H01L *31/06, 31/18*
U.S. Cl. 136—260 147 Claims

4,335,267
GAS INSULATED TRANSMISSION LINE INCLUDING PROVISIONS FOR MINIMIZING PARTICLE GENERATION
Melvyn D. Hopkins, Grafton, Mass., assignor to Westinghouse Electric Corp., Pittsburgh, Pa.
Filed Oct. 26, 1979, Ser. No. 88,740
Int. Cl.[3] H01B *9/06*
U.S. Cl. 174—14 R 9 Claims

4,335,268
PARTICLE TRAP WITH DIELECTRIC BARRIER FOR USE IN GAS INSULATED TRANSMISSION LINES
Steinar J. Dale, Monroeville, Pa., assignor to Westinghouse Electric Corp., Pittsburgh, Pa.
Filed Nov. 14, 1980, Ser. No. 206,753
Int. Cl.[3] H01B *9/06, 9/04;* H02G *5/06*
U.S. Cl. 174—14 R 9 Claims

4,335,269
ISOLATOR DEVICE AND WIRE DISTRIBUTING SYSTEM UTILIZING THE SAME
Paul L. Haskins, Aliquippa, Pa., assignor to H. H. Robertson Company, Pittsburgh, Pa.
Filed Sep. 19, 1980, Ser. No. 188,852
Int. Cl.[3] H02G *3/28*
U.S. Cl. 174—48 14 Claims

4,335,270
SWITCH HOUSING INCORPORATING FLEXIBLY ATTACHED MOUNTING PLATE
Thomas J. Holce, Portland, and Charles M. Huckins, Tigard, both of Oreg., assignors to Sentrol, Inc., Portland, Oreg.
Filed Oct. 16, 1980, Ser. No. 197,522
Int. Cl.[3] H05K *5/00*
U.S. Cl. 174—52 R 5 Claims

4,335,271
ELECTRICAL BOX
Joseph Haslbeck, West Vancouver, Canada, assignor to Highland Mfg. Company Ltd., Burnaby, Canada
Filed Jan. 21, 1980, Ser. No. 113,850
Claims priority, application Canada, Feb. 20, 1979, 321962
Int. Cl.[3] H02G *3/08*
U.S. Cl. 174—65 R 7 Claims

4,335,272
BREAKAWAY CIRCUIT BOARD WITH FLEXIBLE COUPLING
Daniel I. Pittenger, Libertyville, Ill., assignor to Zenith Radio Corporation, Glenview, Ill.
Filed Jul. 28, 1980, Ser. No. 172,921
Int. Cl.[3] H05K *1/02*
U.S. Cl. 174—68.5 8 Claims

4,335,273
ELECTRICALLY INSULATING SEAL ASSEMBLY
Harry P. Levin, N. Hollywood, Calif., assignor to Electric Power Research Institute, Inc., Palo Alto, Calif.
Filed May 25, 1979, Ser. No. 42,670
Int. Cl.[3] F16J *15/10*
U.S. Cl. 174—52 S 15 Claims

4,335,274
SOUND REPRODUCTION SYSTEM
Richard A. Ayers, 10801 De Witt Ct., El Cajon, Calif. 92020
Filed Jan. 11, 1980, Ser. No. 111,232
Int. Cl.[3] H04R *3/08, 9/06*
U.S. Cl. 179—1 F 11 Claims

4,335,275
SYNCHRONOUS METHOD AND APPARATUS FOR SPEECH SYNTHESIS CIRCUIT
George L. Brantingham, Lubbock, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.
Continuation of Ser. No. 901,151, Apr. 28, 1978. This application Feb. 4, 1980, Ser. No. 117,911
Int. Cl.[3] G10L *1/00*
U.S. Cl. 179—1 SM 17 Claims

4,335,276
APPARATUS FOR NON-INVASIVE MEASUREMENT AND DISPLAY NASALIZATION IN HUMAN SPEECH
Glen L. Bull; Wesley E. McDonald, both of Charlottesville, and Milton T. Edgerton, Timbercreek, all of Va., assignors to The University of Virginia, Charlottesville, Va.
Filed Apr. 16, 1980, Ser. No. 140,951
Int. Cl.[3] G10L *1/00*
U.S. Cl. 179—1 SP 20 Claims

4,335,277
CONTROL INTERFACE SYSTEM FOR USE WITH A MEMORY DEVICE EXECUTING VARIABLE LENGTH INSTRUCTIONS
Ajay K. Puri, Lubbock, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.
Continuation of Ser. No. 36,928, May 7, 1979, abandoned. This application Apr. 3, 1981, Ser. No. 250,982
Int. Cl.[3] G10L *1/00*
U.S. Cl. 179—1 SM 6 Claims

4,335,278
COMBINED TAPE RECORDING AND PLAYBACK APPARATUS AND TELEPHONE ANSWERING APPARATUS CONTROLLED BY PRE-RECORDED SIGNALS
Tseng Chee, Kowloon, Hong Kong, assignor to Elite Electrical Products Limited, Kowloon, Hong Kong
Filed Oct. 17, 1980, Ser. No. 112,992
Int. Cl.[3] H04M *1/64*
U.S. Cl. 179—6.06 1 Claim

4,335,279
MECHANICAL TELEPHONE CONVERSATION TIME LIMITING DEVICE
Donato Colombo, Via S. Ammirato, 61, and Lapo Baldacci, Via Lungo l'Affrico, 212, both of Florence, Italy
Filed Apr. 18, 1980, Ser. No. 141,745
Claims priority, application Italy, Apr. 24, 1979, 22110 A/79
Int. Cl.³ H04M *1/00*
U.S. Cl. 179—7.1 R 7 Claims

4,335,280
TELEPHONE CONSTRUCTION
Joseph J. Butchko, P.O. Box G-747, Station "G", Calgary, Alberta, Canada
Continuation-in-part of Ser. No. 43,169, May 29, 1979, abandoned. This application Oct. 14, 1980, Ser. No. 197,002
Int. Cl.³ H04M *1/31, 1/35*
U.S. Cl. 179—90 R 5 Claims

4,335,281
POST-AURICLE CONTOURED HEADSET FOR TWO-WAY VOICE COMMUNICATION
Charles G. Scott, Aptos; James B. Robertson, Soquel, and Robert L. Harris, Aptos, all of Calif., assignors to Plantronics, Inc., Santa Cruz, Calif.
Filed Jun. 24, 1980, Ser. No. 162,634
Int. Cl.³ H04M *1/04*
U.S. Cl. 179—156 A 6 Claims

4,335,282
TIMER SWITCH MODULE
Richard E. Adams, Indianapolis, and Richard W. Stafford, Clayton, both of Ind., assignors to Emhart Industries, Inc., Indianapolis, Ind.
Filed Mar. 24, 1980, Ser. No. 133,532
Int. Cl.³ H01H *7/00*
U.S. Cl. 200—38 R 9 Claims

4,335,283
TEMPERATURE COMPENSATED FILL VALVE/PRESSURE SWITCH
Robert S. Migrin, Dearborn, Mich., assignor to Eaton Corporation, Cleveland, Ohio
Filed Dec. 5, 1979, Ser. No. 100,687
Int. Cl.³ H01H *35/24*
U.S. Cl. 200—61.25 37 Claims

4,335,284
SWITCH FOR DIRECTION INDICATOR OF VEHICLE
Takeshi Ochiai, Toyota; Jun Ohta, Nagoya; Minoru Izawa, Okazaki, and Takashi Haneda, Toyota, all of Japan, assignors to Toyota Jidosha Kogyo Kabushiki Kaisha, Toyota, Japan
Filed Jan. 22, 1980, Ser. No. 114,367
Claims priority, application Japan, Jan. 24, 1979, 54-8076[U]
Int. Cl.³ H01H *3/16*
U.S. Cl. 200—61.27 11 Claims

4,335,285
FLOAT OPERATED ELECTRICAL SWITCH ASSEMBLY
Norman West, High Wycombe, England, assignor to Bestobell Mobrey Limited, Slough, England
Filed Feb. 19, 1980, Ser. No. 122,046
Claims priority, application United Kingdom, Feb. 20, 1979, 7905876
Int. Cl.³ H01H *35/18*
U.S. Cl. 200—84 C 10 Claims

4,335,286
WATERPROOF ELECTRICAL SWITCH
Gunnar Nelson, P.O. Box 2847, Marathon Shores, Fla. 33052
Filed Feb. 25, 1980, Ser. No. 124,067
Int. Cl.³ H01H *9/04*
U.S. Cl. 200—302 11 Claims

4,335,287
LEVER SEAL FOR MINIATURE SEALED TOGGLE SWITCH
Louis F. Aschenbach, Menomonee Falls, and Selami Y. Pusatcioglu, Milwaukee, both of Wis., assignors to Eaton Corporation, Cleveland, Ohio
Filed Mar. 16, 1981, Ser. No. 244,486
Int. Cl.³ H01H *9/04, 21/04*
U.S. Cl. 200—302 7 Claims

4,335,288
ELECTRIC SWITCHING APPARATUS PARTICULARLY A CAM SWITCH
Bernd Ludwig, Marienheide, and Jürgen Donner, Gummersbach, both of Fed. Rep. of Germany, assignors to Starkstrom Gummersbach GmbH, Marienheide, Fed. Rep. of Germany
Filed May 5, 1980, Ser. No. 147,092
Claims priority, application Fed. Rep. of Germany, May 7, 1979, 2918289
Int. Cl.³ H01H *9/02*
U.S. Cl. 200—307 14 Claims

4,335,289
MICROWAVE OVEN
Duaine W. Smith, Tiffin, Iowa, assignor to Amana Refrigeration, Inc., Amana, Iowa
Filed Dec. 21, 1978, Ser. No. 971,717
Int. Cl.³ H05B *6/72*
U.S. Cl. 219—10.55 F 24 Claims

4,335,290
MICROWAVE OVEN BLOWER RADIATOR
Wesley W. Teich, Wayland, Mass., assignor to Raytheon Company, Lexington, Mass.
Continuation of Ser. No. 866,970, Jan. 5, 1978, abandoned. This application Aug. 24, 1979, Ser. No. 69,479
Int. Cl.³ H05B *6/72*
U.S. Cl. 219—10.55 F 10 Claims

4,335,291
POPPED CORN MAKING APPARATUS USED IN A MICROWAVE OVEN
Ken Ishino; Taro Miura, and Yasuo Hashimoto, all of Tokyo, Japan, assignors to TDK Electronics Co., Ltd., Tokyo, Japan
Filed Apr. 4, 1980, Ser. No. 137,257
Claims priority, application Japan, Jul. 23, 1979, 54-92596
Int. Cl.³ H05B *6/80*
U.S. Cl. 219—10.55 E 6 Claims

4,335,292
HIGH FREQUENCY OVEN WITH DRAWER TYPE DOOR
Junzo Tanaka, Fujiidera; Chikao Nakano, and Hitoshi Kurita, both of Yamatokoriyama, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Kadoma, Japan
Filed Apr. 4, 1980, Ser. No. 137,444
Claims priority, application Japan, May 9, 1979, 54-57329; May 9, 1979, 54-62072[U]
Int. Cl.³ H05B *6/78*
U.S. Cl. 219—10.55 F 9 Claims

4,335,293
HEATING CONTROL APPARATUS BY HUMIDITY DETECTION
Tetsu Kobayashi; Takato Kanazawa, both of Nara, and Makoto Tsuboi, Yamatokoriyama, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan
Continuation of Ser. No. 768,191, Feb. 14, 1977, abandoned. This application Jun. 6, 1980, Ser. No. 157,171
Claims priority, application Japan, Feb. 17, 1976, 51-16737; Feb. 20, 1976, 51-18116; Sep. 25, 1976, 51-115288
Int. Cl.³ H05B *6/68*
U.S. Cl. 219—10.55 B 11 Claims

4,335,294
EDM METHOD AND APPARATUS HAVING A GAP DISCHARGE CIRCUIT CONSTRUCTED WITH LIMITED STRAY CAPACITANCES
Kiyoshi Inoue, Tokyo, Japan, assignor to Inoue-Japax Research Incorporated, Yokohama, Japan
Filed Jul. 24, 1980, Ser. No. 171,943
Claims priority, application Japan, Jul. 25, 1979, 54/94737; Jul. 25, 1979, 54/94738; Jul. 25, 1979, 54/106164
Int. Cl.³ B23P *1/08*
U.S. Cl. 219—69 M 25 Claims

4,335,295
METHOD OF MARKING A METAL DEVICE
Gary J. Fowler, 121 31st St., Manhatten Beach, Calif. 90266
Filed May 9, 1979, Ser. No. 37,341
Int. Cl.³ B23K *27/00*
U.S. Cl. 219—121 LM 2 Claims

4,335,296
MACHINE TOOL WITH A LASER BEAM CUTTING DEVICE
Walter Bredow, Alfeld, Fed. Rep. of Germany, assignor to C. Behrens AG, Alfeld, Fed. Rep. of Germany
Filed Jul. 24, 1980, Ser. No. 172,845
Claims priority, application Fed. Rep. of Germany, Aug. 21, 1979, 2933700
Int. Cl.³ B23K *27/00*
U.S. Cl. 219—121 LG 9 Claims

4,335,297
ELECTRON BEAM PROCESSOR
Roger G. Little, Bedford, Mass., assignor to Spire Corporation, Bedford, Mass.
Division of Ser. No. 76,592, Sep. 18, 1979, Pat. No. 4,306,272. This application Dec. 19, 1980, Ser. No. 218,067
Int. Cl.³ B23K *15/00*
U.S. Cl. 219—121 EQ 10 Claims

4,335,298
REINFORCED PLASTIC CONTAINER WITH AN INTEGRAL HEATING ELEMENT
Robert W. Newbold, Jr., Cincinnati, Ohio, assignor to Plas-Tanks Industries, Inc., Fairfield, Ohio
Division of Ser. No. 34,775, Apr. 30, 1979, Pat. No. 4,287,663. This application Apr. 6, 1981, Ser. No. 251,150
Int. Cl.³ F27D *11/02*
U.S. Cl. 219—441 3 Claims

4,335,299
THERMOSTATIC CONTROL FOR ELECTRIC ROOF HEATING CABLE
James F. Belohlavek, 647 Range Line Rd., Mosinee, Wis. 54455
Filed Sep. 29, 1980, Ser. No. 191,919
Int. Cl.³ H05B *1/02*
U.S. Cl. 219—510 4 Claims

4,335,300
DIET CONTROL APPARATUS AND METHOD
William C. Shepherd, 725 Palomares Ave., San Dimas, Calif. 91773
Filed Aug. 27, 1980, Ser. No. 181,867
Int. Cl.³ G06C *1/00*
U.S. Cl. 235—123 4 Claims

4,335,301
WAVE SHAPING CIRCUIT FOR ELECTRO-OPTICAL CODE READERS
Roger C. Palmer, and William J. Purdue, both of Edmonds, Wash., assignors to Interface Mechanisms, Inc., Lynnwood, Wash.
Filed Sep. 27, 1979, Ser. No. 79,326
Int. Cl.³ G06K *7/10*
U.S. Cl. 235—462 34 Claims

4,335,302
BAR CODE SCANNER USING NON-COHERENT LIGHT SOURCE
Jean J. Robillard, Amherst, Mass., assignor to R.L.S. Industries, Inc., Elk Grove, Ill., a part interest
Filed Aug. 20, 1980, Ser. No. 179,754
Int. Cl.³ G06K *7/10*
U.S. Cl. 235—462 15 Claims

4,335,303
METHOD FOR COLLECTING MARKET SURVEY DATA FROM UNIVERSAL PRODUCT TYPE CODED ITEMS
James Call, 8 Soundview Dr., Larchmont, N.Y. 10538
Division of Ser. No. 970,986, Dec. 19, 1978, Pat. No. 4,290,688. This application Oct. 23, 1979, Ser. No. 87,476
Int. Cl.³ G06K *15/12*; G03B *27/00*
U.S. Cl. 235—463 8 Claims

4,335,304
SIGNAL DETECTION MECHANISM FROM ELECTRON MULTIPLIER
Paul W. Palmberg, Minneapolis, Minn., assignor to The Perkin-Elmer Corporation, Norwalk, Conn.
Filed Jul. 31, 1980, Ser. No. 174,022
Int. Cl.³ H01J *40/14*
U.S. Cl. 250—207 8 Claims

4,335,305
TWISTING GEOMETRY SCANNER UTILIZING STAGGERED LENS ARRAY
Ned J. Seachman, Penfield, N.Y., assignor to Xerox Corporation, Stamford, Conn.
Filed Aug. 18, 1980, Ser. No. 179,204
Int. Cl.³ H01J *3/14*
U.S. Cl. 250—216 8 Claims

4,335,306
SURVEYING INSTRUMENT
Alfred F. Gort, Loveland, Colo., and Charles E. Moore, Rochester, N.Y., assignors to Hewlett-Packard Company, Palo Alto, Calif.
Division of Ser. No. 842,864, Oct. 17, 1977, abandoned, which is a division of Ser. No. 742,938, Nov. 18, 1976, Pat. No. 4,108,539. This application Oct. 29, 1979, Ser. No. 89,007
Int. Cl.³ G01D *5/34*
U.S. Cl. 250—231 SE 10 Claims

4,335,307
RADIOGRAPHIC APPARATUS AND METHOD WITH AUTOMATIC EXPOSURE CONTROL
Richard C. DeVries, Aurora, and Edwin R. Hill, Chardon, both of Ohio, assignors to Technicare Corporation, Solon, Ohio
Filed Apr. 21, 1980, Ser. No. 142,187
Int. Cl.³ G03B *41/16*; N05G *1/30*; A61B *6/00*; H04N *5/32*
U.S. Cl. 250—322 10 Claims

4,335,308
INSPECTION OF UNDERWATER STRUCTURES
Leonard R. Caldecourt, Faringdon; Gordon V. Evans, Blewbury, and Tony V. Parsons, Didcot, all of England, assignors to United Kingdom Atomic Energy Authority, London, England
Filed Jan. 8, 1980, Ser. No. 110,406
Claims priority, application United Kingdom, Jan. 10, 1979, 7900845
Int. Cl.³ G01N *23/00*
U.S. Cl. 250—358 R 11 Claims

4,335,309
METHOD AND DEVICE FOR THE RAPID DEFLECTION OF A PARTICLE BEAM
Klaus Anger, and Jüergen Frosien, both of Berlin, Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany
Filed Jul. 24, 1980, Ser. No. 172,085
Claims priority, application Fed. Rep. of Germany, Sep. 13, 1979, 2937136
Int. Cl.³ H01J *37/00, 36/147*
U.S. Cl. 250—396 R 4 Claims

4,335,310
X-RAY DIAGNOSTIC GENERATOR COMPRISING ADJUSTMENT MEANS FOR THE X-RAY TUBE VOLTAGE
Kurt Franke, Erlangen, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany
Filed Jan. 21, 1981, Ser. No. 226,847
Claims priority, application Fed. Rep. of Germany, Feb. 12, 1980, 3005182
Int. Cl.³ H05G *1/32*
U.S. Cl. 250—408 3 Claims

4,335,311
X-RAY DIAGNOSTIC APPARATUS WITH AN IMAGE-INTENSIFIER TV CHAIN
Herbert Lutz, Seukendorf, and Rolf Pfeifer, Erlangen, both of Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany
Continuation of Ser. No. 969,193, Dec. 13, 1978, abandoned. This application Jun. 30, 1980, Ser. No. 164,053
Claims priority, application Fed. Rep. of Germany, Jan. 30, 1978, 2803913
Int. Cl.³ H05G *1/30*
U.S. Cl. 250—409 1 Claim

4,335,312
COUPLING BAR FOR X-RAY TOMOGRAPHY APPARATUS
Volker Onken, Hamburg, Fed. Rep. of Germany, assignor to U.S. Philips Corporation, New York, N.Y.
Filed Jul. 2, 1980, Ser. No. 165,176
Claims priority, application Fed. Rep. of Germany, Jul. 6, 1979, 2927380
Int. Cl.³ G03B *41/16*
U.S. Cl. 250—445 T 3 Claims

4,335,313
METHOD AND APPARATUS FOR ALIGNING AN OPAQUE MASK WITH AN INTEGRATED CIRCUIT WAFER
Justin L. Kreuzer, Trumbull, and David H. Kittell, Stamford, both of Conn., assignors to The Perkin-Elmer Corporation, Norwalk, Conn.
Filed May 12, 1980, Ser. No. 149,106
Int. Cl.³ G01N *21/00, 23/00*
U.S. Cl. 250—491 13 Claims

4,335,314
GENERATOR FOR PULSED ELECTRON BEAMS
Jochen Geerk, Stutensee, and Fritz Ratzel, Linkenheim-Hochstetten, both of Fed. Rep. of Germany, assignors to Kernforschunggszentrum Karlsruhe GmbH, Karlsruhe, Fed. Rep. of Germany
Filed Aug. 5, 1980, Ser. No. 175,833
Claims priority, application Fed. Rep. of Germany, Apr. 12, 1980, 3014151
Int. Cl.³ H01J *3/00*
U.S. Cl. 250—492.3 11 Claims

4,335,315
X-RAY EXAMINATION APPARATUS
Hans Waerve, Sollentuna, and Sten Djurson, Stockholm, both of Sweden, assignors to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany
Division of Ser. No. 942,413, Sep. 14, 1978, Pat. No. 4,223,230. This application Jan. 15, 1980, Ser. No. 112,337
Claims priority, application Fed. Rep. of Germany, Oct. 12, 1977, 2745883
Int. Cl.³ H01J *35/16*
U.S. Cl. 250—523 5 Claims

4,335,316
WEB BREAK DETECTOR WITH ADJUSTABLE SCANNING HEAD
Richard Glanz, Crystal Lake, and Sun C. Chang, Naperville, both of Ill., assignors to Baldwin-Korthe Web Controls, Inc., Addison, Ill.
Filed Apr. 9, 1980, Ser. No. 138,499
Int. Cl.³ G01N *21/88*
U.S. Cl. 250—572 17 Claims

4,335,317
CIRCUIT FOR SENSOR-CONTROLLED TELEMETRY
Hans-Peter Grassl, Munich, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany
Filed Jul. 25, 1980, Ser. No. 173,195
Claims priority, application Fed. Rep. of Germany, Sep. 10, 1979, 2936521
Int. Cl.³ H01J *40/14*
U.S. Cl. 250—578 11 Claims

4,335,318
ENGINE-DRIVEN MODEL TOY
Kenichi Mabuchi, and Tatsuo Katsunuma, both of Matsudo, Japan, assignors to Mabuchi Motor Co., Ltd., Japan
Filed Mar. 31, 1980, Ser. No. 135,996
Claims priority, application Japan, Apr. 24, 1979, 54-50442; May 18, 1979, 54-66624[U]
Int. Cl.³ A63H *27/14*
U.S. Cl. 290—31 11 Claims

4,335,319
HYDRO-ELECTRIC POWER APPARATUS UTILIZING OCEAN CURRENTS
John H. Mettersheimer, Jr., Sanford, Fla., assignor to Charles B. Cannon, Chicago, Ill.
Filed Aug. 27, 1980, Ser. No. 181,718
Int. Cl.³ F03B *13/10*
U.S. Cl. 290—54 13 Claims

4,335,320
MULTI-ZONE ENERGY SUPPLY CONTROLLER
Thomas L. Garver, Kannapolis, N.C., assignor to W. A. Brown & Son, Inc., Salisbury, N.C.
Filed Feb. 13, 1980, Ser. No. 121,158
Int. Cl.³ G05B *11/00*; H02J *13/00*
U.S. Cl. 307—39 6 Claims

4,335,321
ELECTRONIC BALANCE CONTROL CIRCUIT ARRANGEMENT
Michael D. Lyons, and Richard A. Strobel, both of Lexington, Ky., assignors to American Standard Inc., Lexington, Ky.
Filed Dec. 14, 1979, Ser. No. 103,800
Int. Cl.³ H03K *17/72, 5/153*
U.S. Cl. 307—252 B 14 Claims

4,335,322
PULSE GENERATOR FOR PRODUCING A PULSE HAVING A PULSE WIDTH DEPENDENT ON AN INPUT SIGNAL
Kouichi Tanaka, Tokyo, and Masaharu Mori, Warabi, both of Japan, assignors to Nippon Electric Co., Ltd. and Clarion Co., Ltd., both of Tokyo, Japan
Filed Sep. 17, 1979, Ser. No. 75,872
Int. Cl.³ H03K *5/00, 17/28*
U.S. Cl. 307—542 7 Claims

4,335,323
STAMPED SHEET METAL FRAME FOR DYNAMOELECTRIC MACHINE
Earl R. Kebbon, Farmington, Me.; Bobby E. McMillen, Columbus, Miss.; Kenneth W. Stewart, Sr., Columbus, Miss., and Dennis A. Bloodworth, Jr., Columbus, Miss., assignors to AMBAC Industries, Incorporated, Farmington, Conn.
Filed Jan. 17, 1980, Ser. No. 113,078
Int. Cl.³ H02K *5/00*
U.S. Cl. 310—40 R 23 Claims

4,335,324
ROTOR FOR HYDROGEN-COOLED ROTARY ELECTRIC MACHINES
Kazumasa Fujioka, Shimoinayoshi, and Wataru Nakayama, Kashiwa, both of Japan, assignors to Hitachi, Ltd., Tokyo, Japan
Filed Aug. 6, 1980, Ser. No. 175,699
Claims priority, application Japan, Aug. 8, 1979, 54-100261
Int. Cl.³ H02K *1/32*
U.S. Cl. 310—61 1 Claim

4,335,325
DYNAMOELECTRIC MACHINE STATOR ASSEMBLY
Sammy L. Miller, Bowling Green, Ky., and Alan L. Kindig, Holland, Mich., assignors to General Electric Company, Fort Wayne, Ind.
Division of Ser. No. 918,055, Jun. 22, 1978, Pat. No. 4,216,571. This application Apr. 16, 1980, Ser. No. 140,739
Int. Cl.³ H02K *3/48*
U.S. Cl. 310—214 3 Claims

4,335,326
MERCURY DISPENSER FOR DISCHARGE LAMPS
Frank M. Latassa, Magnolia; John G. Ray, Topsfield, and Joseph A. Roy, Danvers, all of Mass., assignors to GTE Products Corporation, Stamford, Conn.
Filed Apr. 23, 1980, Ser. No. 142,904
Int. Cl.³ H01J *61/28*
U.S. Cl. 313—177 6 Claims

4,335,327
X-RAY TUBE TARGET HAVING PYROLYTIC AMORPHOUS CARBON COATING
John S. Waugh, Wellesley, Mass., and Richard G. Weber, Stamford, Conn., assignors to The Machlett Laboratories, Incorporated, Stamford, Conn.
Continuation of Ser. No. 965,764, Dec. 4, 1978, abandoned. This application Apr. 18, 1980, Ser. No. 141,525
Int. Cl.³ H01J *35/08*
U.S. Cl. 313—330 11 Claims

4,335,328
SELECTIVELY ERASABLE STORAGE TARGET WITH INSULATED WEB COLLECTOR
Duane A. Haven, Banks, Oreg., assignor to Tektronix, Inc., Beaverton, Oreg.
Continuation-in-part of Ser. No. 42,172, May 24, 1979, abandoned, which is a continuation-in-part of Ser. No. 6,146, Jan. 24, 1979, abandoned. This application Feb. 23, 1981, Ser. No. 236,489
The portion of the term of this patent subsequent to Mar. 3, 1998, has been disclaimed.
Int. Cl.³ H01J *29/39, 31/08*
U.S. Cl. 313—395 12 Claims

4,335,329
MASK SUPPORT FOR SHADOW MASK ASSEMBLY
Kenichi Fukuzawa, Mobara, and Tetsuo Kumazawa, Dejimamura, both of Japan, assignors to Hitachi, Ltd., Tokyo, Japan
Filed May 8, 1980, Ser. No. 147,962
Claims priority, application Japan, May 18, 1979, 54-60438
Int. Cl.³ H01J *29/07*
U.S. Cl. 313—406 8 Claims

4,335,330
LOW-PRESSURE MERCURY VAPOR DISCHARGE LAMP
Robert C. Peters; Louis E. Vrenken; Winston D. Couvbenberg, and Franciscus A. S. Ligthart, all of Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.
Continuation of Ser. No. 38,616, May 14, 1979, abandoned, which is a continuation of Ser. No. 845,926, Oct. 27, 1977, abandoned. This application Feb. 12, 1980, Ser. No. 120,602
Claims priority, application Netherlands, Nov. 2, 1976, 7612157; Nov. 2, 1976, 7612158; Aug. 23, 1977, 7709263
Int. Cl.³ H01J *61/44*
U.S. Cl. 313—486 7 Claims

4,335,331
LOW PRESSURE METAL VAPOR DISCHARGE LAMP
Yoshio Watanabe, Tokyo; Mikiya Yamane, and Teruichi Tomura, both of Kunitachi, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan
Continuation of Ser. No. 932,546, Aug. 10, 1978, abandoned. This application Jun. 10, 1980, Ser. No. 158,264
Claims priority, application Japan, Aug. 10, 1977, 52-95041; Sep. 28, 1977, 52-115622; Sep. 28, 1977, 52-115623; Sep. 28, 1977, 52-115624
Int. Cl.³ H05B *41/16*
U.S. Cl. 315—334 18 Claims

4,335,332
FOCUS MESH STRUCTURE AND BIASING TECHNIQUE FOR FLAT PANEL DISPLAY DEVICES
Thomas L. Credelle, East Windsor, N.J., assignor to RCA Corporation, New York, N.Y.
Filed Jan. 30, 1981, Ser. No. 230,362
Int. Cl.[3] H01J *29/70, 29/72*
U.S. Cl. 315—366 7 Claims

4,335,333
RASTER SCAN COLOR DISPLAY SYSTEM AND METHOD HAVING IMPROVED PIN CUSHION NON-LINEARITY CORRECTION
Michael Ramsay, San Jose, Calif., and Warren Pratt, Loveland, Colo., assignors to Hewlett-Packard Company, Palo Alto, Calif.
Filed Jan. 29, 1980, Ser. No. 116,421
Int. Cl.[3] H01J *29/70*
U.S. Cl. 315—371 11 Claims

4,335,334
HORIZONTAL SCANNING CIRCUIT
Nobukazu Hosoya, Nara, Japan, assignor to Sanyo Electric Co., Ltd., Osaka, Japan
Filed Sep. 17, 1980, Ser. No. 188,149
Claims priority, application Japan, Sep. 20, 1979, 54-122442; Aug. 29, 1980, 55-123602[U]
Int. Cl.[3] H01J *29/70, 29/76*
U.S. Cl. 315—408 5 Claims

4,335,335
TELEVISION RECEIVER HIGH VOLTAGE PROTECTION CIRCUIT
Donald H. Willis, Indianapolis, Ind., assignor to RCA Corporation, New York, N.Y.
Filed Feb. 11, 1980, Ser. No. 120,473
Int. Cl.[3] H01J *29/80*
U.S. Cl. 315—411 15 Claims

4,335,336
DEVICE FOR CONTROLLING SPEED
Fulvio Filippini, Versailles, France, assignor to Enertec, Montrouge, France
Filed May 21, 1980, Ser. No. 152,005
Claims priority, application France, May 23, 1979, 79 13211
Int. Cl.[3] H02P *5/16*
U.S. Cl. 318—6 13 Claims

4,335,337
CONTROL SYSTEM FOR ELECTRIC MOTOR VEHICLE
Shigetoshi Okamatsu; Takashi Tsuboi; Masahiko Ibamoto, and Hiroshi Narita, all of Katsuta, Japan, assignors to Hitachi, Ltd., Tokyo, Japan
Filed Jul. 23, 1979, Ser. No. 59,559
Claims priority, application Japan, Jul. 21, 1978, 53-88454
Int. Cl.[3] B61C *15/08*
U.S. Cl. 318—52 3 Claims

4,335,338
LINEAR MOTOR
Bruce A. Sawyer, Santa Rosa, Calif., assignor to Xynetics, Inc., Santa Clara, Calif.
Filed Jun. 30, 1980, Ser. No. 164,827
Int. Cl.[3] B64C *13/18*
U.S. Cl. 318—135 37 Claims

4,335,339
ELECTRONIC SAFETY DEVICE
Joseph L. Brickner, 2215 S. Grand Ave., Santa Ana, Calif. 92705
Filed Nov. 20, 1979, Ser. No. 95,936
Int. Cl.[3] E05F *15/10;* H02H *7/09;* H02P *3/00*
U.S. Cl. 318—282 15 Claims

4,335,340
ELECTRIC REVERSIBLE MOTOR CONTROL
Takanori Hara, Hiroshima, and Yoshihiro Shimamura, Kosai, both of Japan, assignors to Toyo Kogyo Co., Ltd., Hiroshima and ASMO Co., Ltd., Shizuoka, both of, Japan
Filed Oct. 1, 1980, Ser. No. 192,838
Claims priority, application Japan, Oct. 8, 1979, 54/130627
Int. Cl.[3] H02P *1/00*
U.S. Cl. 318—282 6 Claims

4,335,341
AUTOMATIC CONTROL METHOD AND APPARATUS
Hitoshi Ogasawara, Hitachi, Japan, assignor to Hitachi, Ltd., Tokyo, Japan
Filed Jul. 3, 1980, Ser. No. 166,703
Claims priority, application Japan, Jul. 6, 1979, 54/85005
Int. Cl.[3] G05B *5/01*
U.S. Cl. 318—624 6 Claims

4,335,342
RECIPROCATING DRIVE SYSTEM FOR A BODY SUCH AS A CARRIAGE SUPPORTING ELECTROSTATIC MEANS FOR SPRAYING A PULVERIZED MATERIAL, THE SYSTEM INCLUDING AN ASYNCHRONOUS SQUIRREL CAGE MOTOR
Roger Tholome, La Tronche, France, assignor to Air Industrie, Societe Anonyme, Courbevoie, France
Filed Dec. 20, 1979, Ser. No. 105,526
Claims priority, application France, Dec. 22, 1978, 78 36615
Int. Cl.[3] G05G *5/00*
U.S. Cl. 318—627 9 Claims

4,335,343
CIRCUIT FOR GENERATING AN ELECTRIC SIGNAL PROPORTIONAL TO A FLUX COMPONENT OF A ROTATING-FIELD MACHINE
Walter Dreiseitl; Dieter Kollensperger; Theodor Salzmann, all of Erlangen; Thomas Schlegel, Hemhofen, and Wolf-Dieter Weigel, Kleinsendelbach, all of Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Munich, Fed. Rep. of Germany
Filed Jul. 18, 1979, Ser. No. 58,832
Claims priority, application Fed. Rep. of Germany, Jul. 31, 1978, 2833593
Int. Cl.[3] H02P *5/28, 5/34*
U.S. Cl. 318—798 8 Claims

4,335,344
VOLTAGE REGULATOR FOR A CONTROLLED FIELD GENERATOR
Leroy A. Gant, 521 Jasmine La., Santa Maria, Calif. 93454
Filed Sep. 2, 1980, Ser. No. 183,184
Int. Cl.[3] H02J *7/14*
U.S. Cl. 322—25 7 Claims

4,335,345
CURRENT LIMITING CIRCUIT FOR SWITCHING REGULATOR
Merle E. Converse, Helotes, Tex., assignor to Transaction Control Industries, Bryan, Tex.
Filed Oct. 9, 1980, Ser. No. 195,666
Int. Cl.[3] G05F *1/44*
U.S. Cl. 323—278 5 Claims

4,335,346

TEMPERATURE INDEPENDENT VOLTAGE SUPPLY

Klaus Streit, Tubingen, Fed. Rep. of Germany, assignor to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

Filed Feb. 18, 1981, Ser. No. 235,757

Claims priority, application Fed. Rep. of Germany, Feb. 22, 1980, 3006598

Int. Cl.³ G05F *3/20*

U.S. Cl. 323—313 8 Claims

4,335,347

POWER COMBINING OR DIVIDING ARRANGEMENTS

John W. Heaviside, Hurstpierpoint, England, assignor to The Marconi Company Limited, Chelmsford, England

Filed Apr. 25, 1980, Ser. No. 143,734

Claims priority, application United Kingdom, Apr. 26, 1979, 7914571

Int. Cl.³ H01Q *23/00*

U.S. Cl. 323—328 7 Claims

4,335,348

CABLE CONDUCTOR CONTINUITY TESTER WITH MAGNETICALLY COUPLED DRIVE MEANS AND SENSOR

William C. Reed, Lilburn, and Donald T. Smith, Norcross, both of Ga., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Apr. 10, 1980, Ser. No. 139,100

Int. Cl.³ G01R *31/02*

U.S. Cl. 324—51 1 Claim

4,335,349

SIMULATED OHMS GENERATION METHOD AND APPARATUS FOR CALIBRATING RESISTANCE TYPE MEASURING INSTRUMENTS

K. Paul Baldock, Marysville, and J. Craig Smith, Jr., Everett, both of Wash., assignors to John Fluke Mfg. Co., Inc., Mountlake Terrace, Wash.

Filed Jun. 5, 1980, Ser. No. 156,569

Int. Cl.³ G01R *27/02*

U.S. Cl. 324—62 25 Claims

4,335,350

APPARATUS FOR PROBING SEMICONDUCTOR WAFERS

James T. C. Chen, 1526 Cherrywood Dr., San Mateo, Calif. 94403

Filed May 23, 1980, Ser. No. 152,664

Int. Cl.³ G01R *27/14*

U.S. Cl. 324—64 12 Claims

4,335,351

MOVING MAGNET ELECTRICAL METER WITH SINGLE PIVOT PIN FOR THE MOVING MAGNET AND A FIXED RETURN MAGNET

Thomas G. Faria, 17 Park Dr., Waterford, Conn. 06385

Division of Ser. No. 892,032, Mar. 31, 1978, abandoned. This application Apr. 9, 1980, Ser. No. 138,530

Int. Cl.³ G01R *5/16, 1/04*

U.S. Cl. 324—146 10 Claims

4,335,352

YIELD STRENGTH DETERMINATION OF FERROMAGNETIC MATERIALS

David D. Stephen, Houston, Tex., assignor to Homco International Inc., Houston, Tex.

Filed Dec. 12, 1979, Ser. No. 102,790

Int. Cl.³ G01R *33/12;* G01N *27/72;* B07C *5/344*

U.S. Cl. 324—228 28 Claims

4,335,353

METHOD AND APPARATUS FOR DETECTING AN ANOMALY IN A RESISTIVITY MEASUREMENT OF AN EARTH FORMATION

Philippe J. Lacour-Gayet, Ridgefield, Conn., assignor to Schlumberger Technology Corporation, New York, N.Y.

Filed Jun. 18, 1979, Ser. No. 49,382

Int. Cl.³ G01V *3/24*

U.S. Cl. 324—366 43 Claims

4,335,354

SENSITIVE DEMODULATOR FOR FREQUENCY SHIFT KEYED CARRIER SIGNALS

Kenneth C. Crandall, Foster City, and Michael A. Robinton, Palo Alto, both of Calif., assignors to Robinton Products, Inc., Sunnyvale, Calif.

Filed Apr. 4, 1980, Ser. No. 137,488

Int. Cl.³ H03D *3/00*

U.S. Cl. 329—126 16 Claims

4,335,355

CMOS OPERATIONAL AMPLIFIER WITH REDUCED POWER DISSIPATION

Yusuf A. Haque, San Jose, Calif., assignor to American Microsystems, Inc., Santa Clara, Calif.

Continuation-in-part of Ser. No. 80,153, Sep. 28, 1979, Pat. No. 4,284,957. This application Feb. 13, 1981, Ser. No. 234,239

Int. Cl.³ H03F *3/45*

U.S. Cl. 330—253 3 Claims

4,335,356

PROGRAMMABLE TWO-QUADRANT TRANSCONDUCTANCE AMPLIFIER

Philip S. Crosby, pPortland, OR, assignor to Tektronix, Inc., Beaverton, Oreg.

Filed Jan. 21, 1980, Ser. No. 113,857

Int. Cl.³ H03F *3/45;* H03G *3/30*

U.S. Cl. 330—254 5 Claims

4,335,358

CLASS "B" TYPE AMPLIFIER

Werner H. Hoeft, Santa Clara County, Calif., assignor to Signetics Corporation, Sunnyvale, Calif.

Filed Jan. 21, 1980, Ser. No. 113,928

Int. Cl.³ H03F *3/30, 3/45*

U.S. Cl. 330—255 6 Claims

4,335,359

MONOLITHICALLY INTEGRABLE LOWPASS FILTER CIRCUIT

Hans Kriedt, and Andreas Dietze, both of Munich, Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Berlin and Munich, Fed. Rep. of Germany

Filed Jan. 25, 1980, Ser. No. 115,257

Claims priority, application Fed. Rep. of Germany, Jan. 29, 1979, 2903299

Int. Cl.³ H03F *1/34*

U.S. Cl. 330—257 7 Claims

4,335,360

CLASS AB PUSH-PULL AMPLIFIERS

Merle V. Hoover, R.D. #6, Box 220, Flemington, N.J. 08822

Filed Nov. 23, 1979, Ser. No. 97,040

Int. Cl.³ H03F *3/16, 3/30*

U.S. Cl. 330—264 9 Claims

4,335,361
VARIABLE GAIN AMPLIFIER
William F. Acker, Seminole, Fla., assignor to Honeywell Inc., Minneapolis, Minn.
Division of Ser. No. 829,705, Sep. 1, 1977. This application Dec. 12, 1979, Ser. No. 102,600
Int. Cl.³ H03G *3/30*; H03F *1/34*
U.S. Cl. 330—285 15 Claims

4,335,362
SEMICONDUCTOR DEVICE AND A METHOD OF CONTACTING A PARTIAL REGION OF A SEMICONDUCTOR SURFACE
Rene P. Salathe, Bern; E. Gerhard Badertscher, Bolligen, and Willy A. R. Lüthy, Köniz, all of Switzerland, assignors to Institut fur Angewandte Physik der Universitat Bern, Bern, Switzerland
Filed Nov. 14, 1979, Ser. No. 94,236
Claims priority, application Switzerland, Nov. 17, 1978, 11827/78
Int. Cl.³ H01S *3/19*
U.S. Cl. 372—46 5 Claims

4,335,363
AMPLITUDE MODULATOR USING A CARRIER TUBE AND A PEAKING TUBE
Douglas F. Bowers, Chelmsford, England, assignor to The Marconi Company Limited, Chelmsford, England
Filed Aug. 5, 1980, Ser. No. 175,832
Claims priority, application United Kingdom, Aug. 14, 1979, 7928255
Int. Cl.³ H03C *1/24*
U.S. Cl. 332—37 R 9 Claims

4,335,364
TRANSITION FROM A COAXIAL CABLE TO A MULTIPOLE PLUG-IN CONNECTOR
Johannes Schmitz, and Roland Röhrbein, both of Backnang, both of Fed. Rep. of Germany, assignors to Licentia Patent-Verwaltungs-GmbH, Frankfurt am Main, Fed. Rep. of Germany
Filed Dec. 1, 1980, Ser. No. 211,787
Claims priority, application Fed. Rep. of Germany, Dec. 6, 1979, 2949013
Int. Cl.³ H01P *5/08*
U.S. Cl. 333—33 4 Claims

4,335,365
TEMPERATURE STABILIZED AND FREQUENCY ADJUSTABLE MICROWAVE CAVITIES
Enzo Pome', Sesto S. Giovanni, Italy, assignor to Telettra-Telefonica Electronica e Radio S.p.A., Milan, Italy
Filed Sep. 25, 1980, Ser. No. 190,566
Claims priority, application Italy, Oct. 15, 1979, 26491 A/79
Int. Cl.³ H01P *7/06*
U.S. Cl. 333—229 4 Claims

4,335,366
COLOR TELEVISION DISPLAY SYSTEM HAVING IMPROVED CONVERGENCE
Roger C. Alig, Princeton Junction; William H. Barkow, Pennsauken, and Josef Gross, Princeton, all of N.J., assignors to RCA Corporation, New York, N.Y.
Filed Feb. 25, 1980, Ser. No. 119,132
Int. Cl.³ H01F *3/12, 7/00*
U.S. Cl. 335—211 5 Claims

4,335,367
ELECTRICALLY INSULATED COIL
Hisayasu Mitsui; Ryozi Kumazawa; Yoshiyuki Inoue; Shuichi Suzuki, all of Yokohama; Takeo Ito, Kawasaki; Sinichi Sanada, and Shuzi Hayase, both of Yokohama, all of Japan, assignors to Tokyo Shibaura Denki Kabushiki Kaisha, Kawasaki, Japan
Filed Aug. 14, 1980, Ser. No. 178,154
Claims priority, application Japan, Aug. 17, 1979, 54/104074; Aug. 17, 1979, 54/104075
Int. Cl.³ H01F *27/32*; B32B *19/00, 27/38*
U.S. Cl. 336—205 10 Claims

4,335,368
DEAD CASE THERMOSTAT ASSEMBLY
Omar R. Givler, North Canton, Ohio, assignor to Portage Electric Products, Inc., North Canton, Ohio
Filed Feb. 13, 1981, Ser. No. 234,242
Int. Cl.³ H01H *37/04, 37/52*
U.S. Cl. 337—372 7 Claims

4,335,369
OXYGEN SENSOR
Harutaka Taniguchi; Kenichi Hara, and Hideo Shiraishi, all of Kawasaki, Japan, assignors to Fuji Electric Co., Ltd., Kanagawa, Japan
PCT No. PCT/JP79/00195, § 371 Date Mar. 14, 1980, § 102(e) Date Mar. 14, 1980
PCT Filed Jul. 26, 1979, Ser. No. 194,242
Claims priority, application Japan, Jul. 26, 1978, 53/91203
Int. Cl.³ H01L *7/00*
U.S. Cl. 338—34 9 Claims

4,335,370
VEHICLE SECURITY DEVICE
Douglas M. Scalley, 21 McGregor Rd., Ravenswood, Cumbernauld, and John M. Mullin, 11 Kirriemuir Gdns., Bishopbriggs, Glasgow, both of Scotland
Filed May 21, 1981, Ser. No. 265,726
Int. Cl.³ B60R *25/04, 25/10*
U.S. Cl. 340—64 12 Claims

4,335,371
DIGITAL ERROR CORRECTING TRIMMING IN AN ANALOG TO DIGITAL CONVERTER
Joseph J. Connolly, Jr.; Thomas P. Redfern, and Thomas M. Frederiksen, all of San Jose, Calif., assignors to National Semiconductor Corporation, Santa Clara, Calif.
Filed Apr. 9, 1979, Ser. No. 28,464
Int. Cl.³ H03K *13/08*
U.S. Cl. 340—347 CC 7 Claims

4,335,372
DIGITAL SCALING APPARATUS
Maurice B. Aufderheide, Scottsdale, and Sam M. Daniel, Tempe, both of Ariz., assignors to Motorola Inc., Schaumbur, Ill.
Filed Mar. 28, 1980, Ser. No. 134,859
Int. Cl.³ G06F *3/00*
U.S. Cl. 340—347 DD 11 Claims

4,335,373
METHOD FOR ANALYZING A DIGITAL-TO-ANALOG CONVERTER WITH A NONIDEAL ANALOG-TO-DIGITAL CONVERTER
Edwin A. Sloane, Los Altos, Calif., assignor to Fairchild Camera & Instrument Corp., Mountain View, Calif.
Continuation-in-part of Ser. No. 204,979, Nov. 7, 1980. This application May 18, 1981, Ser. No. 264,928
Int. Cl.³ H03K *13/02*
U.S. Cl. 340—347 CC 10 Claims

4,335,374
KEY DISCRIMINATION CIRCUIT
Tomoaki Nyuji, Hirakata, Japan, assignor to Matsushita Electric Industrial Co., Ltd., Kadoma, Japan
Continuation-in-part of Ser. No. 964,438, Nov. 28, 1978, abandoned. This application Jun. 9, 1980, Ser. No. 157,834
Claims priority, application Japan, Dec. 2, 1977, 52-145234
Int. Cl.³ G06F *3/02*
U.S. Cl. 340—365 S 2 Claims

4,335,375
CONTAINER FOR AN ALARM TRANSMITTER ADAPTED FOR INSERTION INTO A WALL
Daniel D. Schaeffer, 757 Ocean Ave., Santa Monica, Calif. 90402
Filed Feb. 13, 1978, Ser. No. 877,377
Int. Cl.³ G08B *1/08, 13/08*
U.S. Cl. 340—539 7 Claims

4,335,376
ELECTRONIC CONTROL DEVICE
Ralph E. Marquardt, 2020 Eagle St. North, Cambridge, Ontario, Canada
Filed Apr. 12, 1979, Ser. No. 29,558
Int. Cl.³ G08B *13/08*
U.S. Cl. 340—547 9 Claims

4,335,377
MEDICAL ALERT ALARM
John S. Bostic, Parma Heights, Ohio, assignor to Joseph E. Belavich, Plant City, Fla.
Filed Jul. 11, 1980, Ser. No. 167,786
Int. Cl.³ G08B *3/00*
U.S. Cl. 340—573 11 Claims

4,335,378
TIMED DUAL COMPARATOR ALARM
Charles Coleman, Lakewood, Colo., assignor to Emerson Electric Company, St. Louis, Mo.
Filed Dec. 20, 1978, Ser. No. 971,510
Int. Cl.² G08B *17/10*
U.S. Cl. 340—629 11 Claims

4,335,379
METHOD AND SYSTEM FOR PROVIDING AN AUDIBLE ALARM RESPONSIVE TO SENSED CONDITIONS
John R. Martin, 2345 W. Mill Rd., Milwaukee, Wis. 53209
Filed Sep. 13, 1979, Ser. No. 75,218
Int. Cl.³ G08B *17/10*
U.S. Cl. 340—634 5 Claims

4,335,380
MULTI-BEAM RASTER SCAN DISPLAY MONITOR
David Y. Wright, 560 McMunn, South Lyon, Mich. 48178
Filed Jun. 16, 1980, Ser. No. 159,570
Int. Cl.³ H01J *46/00*
U.S. Cl. 340—744 24 Claims

4,335,381
REMOTE CONTROL OF ELECTRICAL DEVICES
Robin Palmer, Harlow, England, assignor to Rovex Limited, England
Filed Aug. 14, 1979, Ser. No. 66,550
Claims priority, application United Kingdom, Aug. 15, 1978, 33372/78; May 22, 1979, 7917702
Int. Cl.³ H04Q *9/00*
U.S. Cl. 340—825.21 36 Claims

4,335,382
TRAFFIC RADAR SYSTEM
Bryce K. Brown, Decatur; Stephen Correll, Sadorus; Jay Schreiber, Villa Grove; Lawrence E. Mayfield, Decatur, and Darrell D. Jenkins, Argenta, all of Ill., assignors to Decatur Electronics, Inc., Decatur, Ill.
Filed Mar. 10, 1980, Ser. No. 128,510
Int. Cl.³ G01S *13/60, 7/40*
U.S. Cl. 343—8 12 Claims

4,335,383
METHOD AND APPARATUS FOR DIGITALLY DETERMINING THE SPEED OF A TARGET VEHICLE WHILE THE RADAR PLATFORM VEHICLE IS IN MOTION
Fred M. Berry, Lenexa, Kans., assignor to Kustom Electronics, Inc., Lenexa, Kans.
Continuation of Ser. No. 11,210, Feb. 12, 1979, abandoned. This application Nov. 6, 1980, Ser. No. 204,587
Int. Cl.³ G01S *13/58*
U.S. Cl. 343—8 35 Claims

4,335,384
LOGARITHMIC AMPLIFIER CALIBRATION MEANS
John C. Roos, Thousand Oaks, Calif., assignor to Bunker Ramo Corporation, Oak Brook, Ill.
Filed Jan. 10, 1980, Ser. No. 110,892
Int. Cl.³ G01S *5/02*
U.S. Cl. 343—114 14 Claims

4,335,385
STRIPLINE ANTENNAS
Peter S. Hall, Swindon, England, assignor to The Secretary of State for Defence in Her Britannic Majesty's Government of the United Kingdom of Great Britain and Northern Ireland, London, England
Filed Jul. 6, 1979, Ser. No. 55,259
Claims priority, application United Kingdom, Jul. 11, 1978, 29460/78
Int. Cl.³ H01Q *1/38*
U.S. Cl. 343—700 MS 16 Claims

4,335,386
BIFILAR ANTENNA TRAP
Robert H. Johns, 3379 Papermill Rd., Huntingdon Valley, Pa. 19006
Continuation-in-part of Ser. No. 162,928, Jul. 17, 1980. This application Jan. 2, 1981, Ser. No. 222,241
Int. Cl.³ H01Q *9/20, 1/14*
U.S. Cl. 343—722 5 Claims

4,335,387
RADAR ANTENNA WITH ROTATING LINEAR POLARIZATION DESIGNED TO REDUCE JAMMING
Francois Salvat; Jean Bouko, and Jean Le Foll, all of Paris, France, assignors to Thomson-CSF, Paris, France
Filed Jun. 12, 1980, Ser. No. 158,794
Claims priority, application France, Jun. 13, 1979, 79 15139
Int. Cl.³ H01Q *15/24*; G01S *7/36*; H01Q *19/00*
U.S. Cl. 343—756 5 Claims

4,335,388
NULL CONTROL OF MULTIPLE BEAM ANTENNA
William G. Scott, Saratoga; Edgar W. Matthews, Jr., Los Altos; Howard H. S. Luh, Sunnyvale, all of Calif., and Charles A. Klein, Centerburg, Ohio, assignors to Ford Aerospace & Communications Corp., Dearborn, Mich.
Continuation of Ser. No. 13,597, Feb. 21, 1979, abandoned. This application Jul. 14, 1980, Ser. No. 168,964
Int. Cl.³ H01Q *3/30*
U.S. Cl. 343—854 21 Claims

4,335,389
LIQUID DROPLET EJECTING RECORDING HEAD
Yoshiaki Shirato, Yokohama; Yasushi Takatori, Sagamihara; Toshitami Hara, Tokyo; Yukuo Nishimura, Sagamihara, and Michiko Takahashi, Higashi, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan
Filed Mar. 24, 1980, Ser. No. 133,140
Claims priority, application Japan, Mar. 27, 1979, 54-36041; Dec. 28, 1979, 54-171335
Int. Cl.³ G01D *15/18*
U.S. Cl. 346—140 R 11 Claims

4,335,390
CATHODE RAY TUBE PRINTING APPARATUS AND METHOD
John G. Axford, Winchester, England, assignor to International Business Machines Corporation, Armonk, N.Y.
Filed Dec. 7, 1979, Ser. No. 101,343
Claims priority, application United Kingdom, Dec. 27, 1978, 49993/78
Int. Cl.³ G01D *15/06*
U.S. Cl. 346—158 13 Claims

4,335,391
NON-VOLATILE SEMICONDUCTOR MEMORY ELEMENTS AND METHODS OF MAKING
Henry B. Morris, Plano, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.
Filed Dec. 11, 1978, Ser. No. 968,544
Int. Cl.³ H01L *29/78*
U.S. Cl. 357—23 11 Claims

4,335,392
SEMICONDUCTOR DEVICE WITH AT LEAST TWO SEMICONDUCTOR ELEMENTS
Karl Reiter, Mannheim, Fed. Rep. of Germany, assignor to Brown, Boveri & Cie Aktiengeseilschaft, Mannheim, Fed. Rep. of Germany
PCT No. PCT/DE79/00020, § 371 Date Nov. 21, 1979, § 102(e) Date Nov. 21, 1979, PCT Pub. No. WO79/00817, PCT Pub. Date Oct. 18, 1979
PCT Filed Mar. 6, 1979, Ser. No. 175,208
Claims priority, application Fed. Rep. of Germany, Mar. 23, 1978, 7808801[U]
Int. Cl.³ H01L *23/16*, *23/32*, *29/74*
U.S. Cl. 357—75 5 Claims

4,335,393
METHOD AND SYSTEM USING SEQUENTIALLY ENCODED COLOR AND LUMINANCE PROCESSING OF VIDEO TYPE SIGNALS TO IMPROVE PICTURE QUALITY
Gilbert J. Pearson, Sunnyvale, Calif., assignor to Harris Video Systems, Inc., Sunnyvale, Calif.
Filed Apr. 15, 1980, Ser. No. 140,550
Int. Cl.³ H04N *5/76*, *9/42*, *9/32*, *9/535*
U.S. Cl. 358—4 75 Claims

4,335,394
CROSSTALK FILTERING ARRANGEMENT WITH VARIABLE FREQUENCY FILTERING TO REMOVE EFFECTS OF FM CARRIER
Henry R. Warren, Belle Mead, N.J., assignor to RCA Corporation, New York, N.Y.
Filed Dec. 19, 1979, Ser. No. 105,111
Int. Cl.³ H04N *5/795*
U.S. Cl. 358—8 15 Claims

4,335,395
STANDARDS CONVERSION OF COLOR TELEVISION SIGNALS
Christopher K. P. Clarke, Crawley, England, assignor to British Broadcasting Corporation, London, England
Filed Sep. 8, 1980, Ser. No. 185,068
Claims priority, application United Kingdom, Oct. 5, 1979, 7934695
Int. Cl.³ H04N *9/42*
U.S. Cl. 358—11 4 Claims

4,335,396
AUTOMATIC EQUALIZATION SYSTEM FOR TELEVISION RECEIVER
Theodore S. Rzeszewski, Lombard, Ill., assignor to Matsushita Electric Corporation, Franklin Park, Ill.
Filed Nov. 13, 1980, Ser. No. 206,648
Int. Cl.³ H04N *9/535*
U.S. Cl. 358—21 R 8 Claims

4,335,397
METHOD AND APPARATUS FOR DIGITALLY ADJUSTING WHITE BALANCE
Eiji Tamura, Tokyo, Japan, assignor to Sony Corporation, Tokyo, Japan
Filed Jun. 24, 1980, Ser. No. 162,640
Int. Cl.³ H04N *9/535*
U.S. Cl. 358—29 10 Claims

4,335,398
DIGITAL COLOR CONTROL METHOD AND MACHINE
Mitsuhiko Yamada, Kyoto, Japan, assignor to Dainippon Screen Seizo Kabushiki Kaisha, Kyoto, Japan
Filed Apr. 22, 1980, Ser. No. 142,650
Claims priority, application Japan, Apr. 23, 1979, 54-49077; Apr. 23, 1979, 54-49078; Apr. 23, 1979, 54-49079
Int. Cl.³ G03F *3/00*
U.S. Cl. 358—80 36 Claims

4,335,399
NORMALIZING CIRCUIT FOR COLOR PRINTING SYSTEM
Fumio Matsumoto, Minami-ashigara, Japan, assignor to Fuji Photo Film Co., Ltd., Minami-ashigara, Japan
Filed Jun. 16, 1980, Ser. No. 159,620
Claims priority, application Japan, Jun. 18, 1979, 54-76626
Int. Cl.³ G03F *3/00*
U.S. Cl. 358—80 12 Claims

4,335,400
ADAPTIVE POST-FILTER FOR INFRARED SCAN CONVERTER
Sen-Te Chow, Alexandria, and Tsan H. Lin, Vienna, both of Va., assignors to The United States of America as represented by the Secretary of the Army, Washington, D.C.
Filed Oct. 22, 1980, Ser. No. 199,419
Int. Cl.[3] H04N *5/14, 5/21, 5/33*
U.S. Cl. 358—113 2 Claims

4,335,401
RAPID CORRELATION OF RECORDED INFORMATION
George S. Zorbalas, Cherry Hill, N.J., assignor to RCA Corporation, New York, N.Y.
Filed Aug. 28, 1980, Ser. No. 181,998
Int. Cl.[3] G11B *15/46*
U.S. Cl. 358—127 5 Claims

4,335,402
INFORMATION TRANSMISSION DURING FIRST-EQUALIZING PULSE INTERVAL IN TELEVISION
David D. Holmes, Trenton, N.J., assignor to RCA Corporation, New York, N.Y.
Filed Nov. 14, 1980, Ser. No. 206,946
Claims priority, application United Kingdom, Jul. 1, 1980, 8021570
Int. Cl.[3] H04N *7/08*
U.S. Cl. 358—147 10 Claims

4,335,403
HORIZONTAL COUNTDOWN SYSTEM FOR TELEVISION RECEIVERS
Gopal K. Srivastava, Buffalo Grove, Ill., assignor to Zenith Radio Corporation, Glenview, Ill.
Filed Jan. 9, 1981, Ser. No. 223,611
Int. Cl.[3] H04N *5/04*
U.S. Cl. 358—148 14 Claims

4,335,404
VIDEO SIGNAL MIXER APPARATUS AND METHOD
John R. Martinson, Jr., 453 N. Doheny Dr., Apt. C, Beverly Hills, Calif. 90210
Filed Oct. 10, 1980, Ser. No. 195,797
Int. Cl.[3] H04N *5/44*
U.S. Cl. 358—188 12 Claims

4,335,405
MOS-IMAGE SENSOR
Toshio Sakane, and Tokuichi Tsunekawa, both of Yokohama, Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan
Filed Apr. 22, 1980, Ser. No. 142,749
Claims priority, application Japan, Apr. 28, 1979, 54-52621
Int. Cl.[3] H04N *3/15*
U.S. Cl. 358—213 14 Claims

4,335,406
SOLID-STATE IMAGING DEVICE
Shinya Ohba, Kokubunji; Masaharu Kubo, Hachioji; Iwao Takemoto, Tokyo; Shoji Hanamura, Kokubonji, and Masakazu Aoki, Hachioji, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan
Filed Jun. 26, 1980, Ser. No. 163,298
Claims priority, application Japan, Jul. 2, 1979, 54-82630
Int. Cl.[3] H04N *3/15*
U.S. Cl. 358—213 6 Claims

4,335,407
SHARPNESS EMPHASIZING METHOD AND MACHINE USED IN A PICTURE REPRODUCING MACHINE
Hitomi Atoji, Kyoto; Masuo Kunisawa, Uji; Atsuro Hirata, Kyoto, and Yasuaki Araki, Kyoto, all of Japan, assignors to Dainippon Screen Seizo Kabushiki Kaisha, Tenjin-kitamachi, Japan
Filed May 1, 1980, Ser. No. 145,443
Claims priority, application Japan, May 2, 1979, 54-53507
Int. Cl.[3] H04N *1/40*
U.S. Cl. 358—284 10 Claims

4,335,408
DIGITAL TRACKING SYSTEM
Konrad M. Dinter, Lawrenceville, N.J., assignor to RCA Corporation, New York, N.Y.
Filed May 28, 1980, Ser. No. 153,969
Claims priority, application United Kingdom, Apr. 8, 1980, 8011560
Int. Cl.[3] G11B *21/10*
U.S. Cl. 360—77 17 Claims

4,335,409
TAPE PACK EJECTING MECHANISM FOR TAPE PLAYER
Tadashi Yokota; Wataru Watanabe, and Makoto Kondo, all of Toda, Japan, assignors to Clarion Co., Ltd., Tokyo, Japan
Filed Feb. 21, 1980, Ser. No. 123,197
Claims priority, application Japan, Feb. 26, 1979, 54-020765
Int. Cl.[3] G11B *15/66, 5/78*
U.S. Cl. 360—96.6 5 Claims

4,335,410
THIN FILM MAGNETIC TRANSDUCER
William F. Neu, Oklahoma City, Okla., assignor to Magnex Corporation, San Jose, Calif.
Division of Ser. No. 3,380, Jan. 15, 1979, Pat. No. 4,260,450. This application Apr. 4, 1980, Ser. No. 137,137
Int. Cl.[3] G11B *5/20*
U.S. Cl. 360—123 5 Claims

4,335,411
LENGTH COUNTER FOR WEB TRANSPORT SYSTEM
William A. Dischert, Camden, N.J., assignor to RCA Corporation, New York, N.Y.
Filed Jan. 28, 1980, Ser. No. 116,253
Int. Cl.[3] G11B *15/18, 15/48;* B65H *23/08, 59/00*
U.S. Cl. 360—137 2 Claims

4,335,412
TRIAX SAFETY CIRCUIT
Felix Aschwanden, Thawil, Switzerland, assignor to RCA Corporation, Princeton, N.J.
Filed Feb. 13, 1981, Ser. No. 234,541
Claims priority, application United Kingdom, Sep. 12, 1980, 8029527
Int. Cl.[3] H02H *3/16*
U.S. Cl. 361—50 11 Claims

4,335,413
CIRCUIT INTERRUPTER WITH REMOTE INDICATOR AND POWER SUPPLY
Joseph C. Engel, Monroeville; John A. Wafer, Beaver; Bernard J. Mercier, Pittsburgh, and Joseph J. Matsko, Beaver, all of Pa., assignors to Westinghouse Electric Corp., Pittsburgh, Pa.
Filed Apr. 15, 1980, Ser. No. 140,556
Int. Cl.[3] H02H *3/04*
U.S. Cl. 361—93 10 Claims

4,335,414
AUTOMATIC RESET CURRENT CUT-OFF FOR AN ELECTROSTATIC PRECIPITATOR POWER SUPPLY
William G. Weber, West Chester, Ohio, assignor to United Air Specialists, Inc., Cincinnati, Ohio
Filed Oct. 30, 1980, Ser. No. 202,314
Int. Cl.[3] H02H *3/24*
U.S. Cl. 361—100 15 Claims

4,335,415
ANTENNA LIGHTNING ARRESTOR
William D. Hooberry, 114 Enterprise St., Brunswick, Ga. 31520
Filed Feb. 7, 1980, Ser. No. 119,465
Int. Cl.[3] H02H *7/20, 3/08*
U.S. Cl. 361—104 2 Claims

4,335,416
TELEPHONE PROTECTOR MODULE HAVING FLAG INDICATOR
Thomas A. Hollfelder, Huntington, and Paul V. De Luca, Plandome Manor, both of N.Y., assignors to Porta Systems Corp., Syosset, N.Y.
Filed Feb. 13, 1981, Ser. No. 234,209
Int. Cl.[3] H02H *3/22*
U.S. Cl. 361—119 3 Claims

4,335,417
HEAT SINK THERMAL TRANSFER SYSTEM FOR ZINC OXIDE VARISTORS
Eugene C. Sakshaug, Lanesborough, and Earl W. Stetson, Pittsfield, both of Mass., assignors to General Electric Company
Continuation-in-part of Ser. No. 939,792, Sep. 5, 1978, abandoned. This application Apr. 7, 1980, Ser. No. 138,169
Int. Cl.[3] H02H *3/22*
U.S. Cl. 361—127 6 Claims

4,335,418
ELECTRONIC INTERRUPTER
Mark W. P. Clement, Owen Sound, Canada, assignor to General Signal Corporation, Stamford, Conn.
Filed Oct. 27, 1980, Ser. No. 201,100
Int. Cl.[3] H01H *47/32*
U.S. Cl. 361—152 11 Claims

4,335,419
INSULATED DUST CONTROL APPARATUS FOR USE IN AN EXPLOSIVE ENVIRONMENT
Edward E. Hastings, 28 Wistar Rd., Villanova, Pa. 19085
Filed Oct. 20, 1980, Ser. No. 198,739
Int. Cl.[3] B05B *5/02*
U.S. Cl. 361—228 15 Claims

4,335,420
CORONA DISCHARGE DEVICE
Tanaka Mitsuo, Machida; Tagawa Kazuaki, and Yano Takashi, both of Tokyo, all of Japan, assignors to Ricoh Co., Ltd., Tokyo, Japan
PCT No. PCT/JP79/00183, § 371 Date Mar. 11, 1980, § 102(e) Date Mar. 11, 1980, PCT Pub. No. WO80/00276, PCT Pub. Date Feb. 21, 1980
PCT Filed Jul. 10, 1979, Ser. No. 209,101
Claims priority, application Japan, Jul. 11, 1978, 53-84689
Int. Cl.[3] H01T *19/04*
U.S. Cl. 361—230 4 Claims

4,335,421
LIGHT FIXTURE, LIGHT APERTURE AND METHOD OF UNIFORMLY ILLUMINATING AN OPTICALLY DIFFUSIVE VIEWING AREA
Joseph W. Modia, and James McCarthy, III, both of 1508 Edenton Ct., Fort Wayne, Ind. 46804
Filed Mar. 17, 1980, Ser. No. 130,743
Int. Cl.[3] G09F *13/10*; G02B *5/08, 27/14*; F21L *3/00*; F21V *7/12*
U.S. Cl. 362—223 22 Claims

4,335,422
ELASTIC LIGHT MOUNTING TAPES
John C. Van Ess, Chicago, Ill., assignor to Walter A. Ross, Schiller Park, Ill.
Continuation of Ser. No. 14,225, Feb. 22, 1979, abandoned, which is a continuation-in-part of Ser. No. 966,439, Dec. 4, 1978, Pat. No. 4,244,014. This application Jul. 23, 1980, Ser. No. 171,321
The portion of the term of this patent subsequent to Jan. 6, 1998, has been disclaimed.
Int. Cl.[3] F21V *21/00, 21/08*
U.S. Cl. 362—388 12 Claims

4,335,423
TRANSFORMER
Akio Koizumi; Hiroshi Nakazawa, both of Tokyo, and Akira Endo, Tagajyo, all of Japan, assignors to Sony Corporation, Tokyo, Japan
Filed Oct. 20, 1980, Ser. No. 198,451
Claims priority, application Japan, Oct. 19, 1979, 54-135801
Int. Cl.[3] H02M *3/335*
U.S. Cl. 363—21 15 Claims

4,335,424
CYCLING FIRING METHOD FOR BYPASS OPERATION OF BRIDGE CONVERTERS
Zivan Zabar, 99-72 66th Rd., Apt. 9N, Forest Hills, N.Y. 11375
Filed Aug. 25, 1980, Ser. No. 181,067
Int. Cl.[3] H02H *7/125*
U.S. Cl. 363—54 1 Claim

4,335,425
DATA PROCESSING APPARATUS HAVING DIAGNOSIS FUNCTION
Humio Goto; Chikahiko Izumi, and Riujiro Imai, all of Hadano, Japan, assignors to Hitachi, Ltd., Tokyo, Japan
Filed Dec. 13, 1979, Ser. No. 103,405
Claims priority, application Japan, Dec. 29, 1978, 53-165216
Int. Cl.[3] G06F *11/32*
U.S. Cl. 364—200 9 Claims

4,335,426
REMOTE PROCESSOR INITIALIZATION IN A MULTI-STATION PEER-TO-PEER INTERCOMMUNICATION SYSTEM
Hiram M. Maxwell; Roger E. McKay; Niconedi P. Nacheber, Jr., and Daniel T. Sze, all of Boca Raton, Fla., assignors to International Business Machines Corporation, Armonk, N.Y.
Filed Mar. 10, 1980, Ser. No. 129,004
Int. Cl.[3] G06F *3/04, 15/16*; H04M *11/00*
U.S. Cl. 364—200 6 Claims

4,335,427
METHOD OF SELECTING A PREFERRED DIFFERENCE IMAGE
Willard F. Hunt, Cleveland, and Robert H. McCarthy, Chagrin Falls, both of Ohio, assignors to Technicare Corporation, Solon, Ohio
Filed Apr. 21, 1980, Ser. No. 142,188
Int. Cl.³ G06F *15/42;* H04N *5/32*
U.S. Cl. 364—414 8 Claims

4,335,428
ELECTRONIC SYSTEM FOR CONTROLLING AN AUTOMATIC TRANSMISSION IN RESPONSE TO CHANGES IN SLOPE
Nobuaki Miki; Mutsumi Kawamoto, both of Nagoya; Hiroyuki Amano, Chiryu; Tsuneo Hida, Toyokawa, and Tsuyoshi Yoshida, Toyota, all of Japan, assignors to Aisin-Waker Kabushiki Kaisha, Aichi, Japan
Filed Jan. 24, 1980, Ser. No. 115,166
Claims priority, application Japan, Feb. 14, 1979, 54-16483
Int. Cl.³ G06F *15/20;* B60K *41/08*
U.S. Cl. 364—424 8 Claims

4,335,429
CONTROL APPARATUS FOR ENGINE/ELECTRIC HYBRID VEHICLE
Shiro Kawakatsu, Suita, Japan, assignor to Daihatsu Motor Co., Ltd., Ikeda, Japan
Filed Mar. 12, 1980, Ser. No. 129,718
Claims priority, application Japan, Mar. 20, 1979, 54-34977
Int. Cl.³ B60K *1/00*
U.S. Cl. 364—424 26 Claims

4,335,430
CONTROL AND COMPENSATION DEVICE IN AN ANTI-SKID CONTROL SYSTEM
Taiji Ohmori, Kawagoe, and Makoto Sato, Kamifukuoka, both of Japan, assignors to Honda Giken Kogyo Kabushiki Kaisha, Shibuya, Japan
Filed Feb. 14, 1980, Ser. No. 121,585
Claims priority, application Japan, Mar. 16, 1979, 54-30723
Int. Cl.³ B60T *8/00*
U.S. Cl. 364—426 7 Claims

4,335,431
SKID CONTROL METHOD
Junichi Takahashi, Katsuta, Japan, assignor to Hitachi, Ltd., Tokyo, Japan
Filed Mar. 10, 1980, Ser. No. 128,863
Claims priority, application Japan, Mar. 14, 1979, 54-30447
Int. Cl.³ B60T *8/02*
U.S. Cl. 364—426 11 Claims

4,335,432
OPTIMAL VEHICLE FOLLOWING CONTROL SYSTEM
Alan J. Pue, Columbia, Md., assignor to United States of America, Washington, D.C.
Filed Jan. 28, 1980, Ser. No. 115,651
Int. Cl.³ B61L *23/00*
U.S. Cl. 364—436 9 Claims

4,335,433
METHOD FOR CORRECTING NAVIGATION ERRORS DUE TO WATER CURRENTS
Russell H. Bauer, Glendale, Md., and Madeleine Heidkamp, Buena Park, Calif., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.
Filed Jun. 16, 1980, Ser. No. 160,049
Int. Cl.³ G06F *15/20, 15/50*
U.S. Cl. 364—443 5 Claims

4,335,434
ELECTRONICALLY CONTROLLED FRANKING MACHINE
Kurt Baumann; Peter Kusche, both of Berlin, and Reinhard Redecker, Bielefeld, all of Fed. Rep. of Germany, assignors to Postalia GmbH, Berlin, Fed. Rep. of Germany
Filed Apr. 28, 1980, Ser. No. 144,337
Claims priority, application Fed. Rep. of Germany, Apr. 26, 1979, 2916840
Int. Cl.³ G06F *15/20*
U.S. Cl. 364—464 6 Claims

4,335,435
METHOD OF CHANGING ROLLING SCHEDULE DURING ROLLING IN TANDEM ROLLING MILL
Keiichi Miura, Kobe, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan
Filed Nov. 1, 1979, Ser. No. 90,311
Claims priority, application Japan, Nov. 1, 1978, 53-135395
Int. Cl.³ G06F *15/46;* B21B *37/00*
U.S. Cl. 364—469 3 Claims

4,335,436
MICROPROCESSOR-CONTROLLED EDM SYSTEM
Kiyoshi Inoue, Tokyo, Japan, assignor to Inoue-Japax Research Incorporated, Yokohama, Japan
Filed Dec. 7, 1979, Ser. No. 101,080
Claims priority, application Japan, Dec. 8, 1978, 53-152500; Dec. 12, 1979, 53-154522
Int. Cl.³ G06F *15/46;* B23P *1/08*
U.S. Cl. 364—474 8 Claims

4,335,437
CIRCUIT INTERRUPTER WITH ENERGY MANAGEMENT FUNCTIONS
John T. Wilson; John A. Wafer, both of Beaver, and Joseph C. Engel, Monroeville, all of Pa., assignors to Westinghouse Electric Corp., Pittsburgh, Pa.
Filed Apr. 15, 1980, Ser. No. 140,554
Int. Cl.³ H02H *3/08;* G06F *15/56*
U.S. Cl. 364—483 10 Claims

4,335,438
METHOD AND APPARATUS FOR AUTOMATIC DISSOLUTION TESTING OF PRODUCTS
Victor F. Smolen, 227 Timbercrest Rd., West Lafayette, Ind. 47906
Filed Apr. 17, 1980, Ser. No. 141,093
Int. Cl.³ G06F *15/46;* G01N *31/00*
U.S. Cl. 364—497 15 Claims

4,335,439
WEIGHT MONITORING DEVICE FOR STRIP METAL STOCK
Andrew R. St. Denis, 3541 Rankin Ave., Windsor, Ontario, Canada
Filed Apr. 25, 1980, Ser. No. 143,729
Int. Cl.³ G06F *15/46*
U.S. Cl. 364—562 10 Claims

4,335,440
SIGNAL ENHANCEMENT CIRCUIT
Vance B. Gold, Lombard, Ill., assignor to American Can Company, Greenwich, Conn.
Filed Dec. 20, 1979, Ser. No. 105,533
Int. Cl.³ G06G *7/12*; G06J *1/00*
U.S. Cl. 364—571 4 Claims

4,335,441
ELECTRONICALLY CONTROLLED INDICATOR AND TESTING DEVICE FOR FRANKING MACHINES
Kurt Baumann; Peter Kusche, both of Berlin, and Reinhard Redecker, Bielefeld, all of Fed. Rep. of Germany, assignors to Postalia GmbH, Offenbach am Main, Fed. Rep. of Germany
Filed Apr. 28, 1980, Ser. No. 144,336
Claims priority, application Fed. Rep. of Germany, Apr. 26, 1979, 2916811
Int. Cl.³ G06F *15/20*
U.S. Cl. 364—580 4 Claims

4,335,442
SYNCHRONOUS OSCILLATOR DEMODULATOR SYSTEM
Soren B. Backe, Dundee, Ill., assignor to American Can Company, Greenwich, Conn.
Filed Dec. 20, 1979, Ser. No. 105,532
Int. Cl.³ G06J *1/00*
U.S. Cl. 364—608 10 Claims

4,335,443
ELECTRONIC ANGLE RESOLVER
Baron C. Dickey, 982 Yorktown Dr., Sunnyvale, Calif. 94087
Filed Dec. 21, 1979, Ser. No. 106,044
Int. Cl.³ G06G *7/22*; G06J *1/00*
U.S. Cl. 364—815 16 Claims

4,335,444
MULTIPLE PULSE-WIDTH MULTIPLIER
Felix Blaschke, Erlangen, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Munich, Fed. Rep. of Germany
Filed May 9, 1980, Ser. No. 148,141
Claims priority, application Fed. Rep. of Germany, May 16, 1979, 2919786
Int. Cl.³ G06G *7/22*
U.S. Cl. 364—815 9 Claims

4,335,445
SYSTEM FOR INTERFACING COMPUTERS WITH PROGRAMMABLE POWER SUPPLIES
Sarkis Nercessian, Flushing, N.Y., assignor to Kepco, Inc., Flushing, N.Y.
Filed Feb. 26, 1979, Ser. No. 15,453
Int. Cl.³ G06F *3/00*
U.S. Cl. 364—900 3 Claims

4,335,446
TERMINAL EQUIPMENT FOR DATA-TRANSMISSION NETWORK INCLUDING DIGITALLY OPERATING MODEM
Francesco Gandini, Turin; Giuseppe Giandonato, Rivalba-Turin; Enrico Impallomeni, and Roberto Montagna, both of Turin, all of Italy, assignors to CSELT - Centro Studi e Laboratori Telecomunicazioni S.p.A., Turin, Italy
Continuation of Ser. No. 902,164, May 2, 1978, abandoned. This application Dec. 6, 1979, Ser. No. 100,908
Claims priority, application Italy, May 2, 1977, 67967 A/77
Int. Cl.³ H04B *12/00*; G06F *7/48*
U.S. Cl. 364—900 7 Claims

4,335,447
POWER OUTAGE RECOVERY METHOD AND APPARATUS FOR DEMAND RECORDER WITH SOLID STATE MEMORY
John W. Jerrim, Lilburn, Ga., assignor to Sangamo Weston, Inc., Atlanta, Ga.
Filed Feb. 5, 1980, Ser. No. 118,830
Int. Cl.³ G11C *11/00, 7/00*
U.S. Cl. 364—900 9 Claims

4,335,448
ELECTRONIC CONTROL SYSTEM
Bradford O. VanNess, Paradise Valley, Ariz., assignor to Engineered Systems, Inc., Tempe, Ariz.
Continuation of Ser. No. 13,007, Feb. 21, 1979, abandoned. This application Apr. 6, 1981, Ser. No. 251,310
Int. Cl.³ G06F *3/04, 15/20*
U.S. Cl. 364—900 10 Claims

4,335,449
SEMICONDUCTOR MEMORY DEVICE
Jyoji Nokubo, Tokyo, Japan, assignor to Nippon Electric Co., Ltd., Tokyo, Japan
Filed Mar. 26, 1980, Ser. No. 133,999
Claims priority, application Japan, Mar. 26, 1979, 54/3518
Int. Cl.³ G11C *11/40*
U.S. Cl. 365—177 10 Claims

4,335,450
NON-DESTRUCTIVE READ OUT FIELD EFFECT TRANSISTOR MEMORY CELL SYSTEM
Donald R. Thomas, Westford, Vt., assignor to International Business Machines Corporation, Armonk, N.Y.
Filed Jan. 30, 1980, Ser. No. 116,736
Int. Cl.³ G11C *11/40*
U.S. Cl. 365—182 19 Claims

4,335,451
SIGNALLING METHOD AND APPARATUS FOR ENHANCING ECHO IMAGES
Mervyn L. Feuer, Grass Valley, Calif., assignor to Leonard Frazier, Suisun, Calif.
Continuation of Ser. No. 942,965, Sep. 18, 1978, abandoned. This application Mar. 24, 1980, Ser. No. 133,525
Int. Cl.³ G01S *15/06*
U.S. Cl. 367—115 15 Claims

4,335,452
ELECTRO-ACOUSTIC DEVICE FOR THE UNDERWATER SIGNALLING AND IDENTIFICATION OF A VESSEL
Philippe Eberlin, Geneva, and Mario Rossi, Lausanne, both of Switzerland, assignors to Blanchut & Bertrand S.A., Switzerland
Filed Aug. 13, 1980, Ser. No. 178,379
Claims priority, application Switzerland, Aug. 14, 1979, 7424/79
Int. Cl.³ H04B *11/00*
U.S. Cl. 367—134 10 Claims

4,335,453
ELECTRONIC WATCH
Jean-Claude Fatton, Le Landeron, Switzerland, assignor to Ebauches Electroniques S.A., Marin, Switzerland
Filed May 21, 1980, Ser. No. 151,780
Claims priority, application Switzerland, Jun. 1, 1979, 5133/79
Int. Cl.³ G04B *19/24, 19/30;* G04C *19/00*
U.S. Cl. 368—30 4 Claims

4,335,454
GEAR TRAIN MECHANISM FOR A TIMEPIECE
Haruyoshi Yamada, Suwa, Japan, assignor to Kabushiki Kaisha Suwa Seikosha, Tokyo, Japan
Filed Nov. 9, 1979, Ser. No. 93,097
Claims priority, application Japan, Nov. 17, 1978, 53-141891
Int. Cl.³ G04B *19/02*
U.S. Cl. 368—220 9 Claims

4,335,455
METHOD AND APPARATUS FOR FOUR-WIRE TYPE TRANSMISSION OF DIGITAL MESSAGE SIGNALS
Peter Hirschmann, Puchheim, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Berlin and Munich, Fed. Rep. of Germany
Filed Jun. 2, 1980, Ser. No. 155,389
Claims priority, application Fed. Rep. of Germany, Jul. 5, 1979, 2927228
Int. Cl.³ H04M *3/00*
U.S. Cl. 370—29 14 Claims

4,335,456
SWITCH-THROUGH UNIT FOR BIT GROUPS WITHIN A PROGRAM CONTROLLED, ELECTRONIC DATA SWITCHING SYSTEM
Rainer Gaiser, Munich; Rolf Hagen, Unterhaching, and Bernhard Schaffer, Lochham, all of Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Munich, Fed. Rep. of Germany
Continuation of Ser. No. 887,964, Mar. 20, 1978, abandoned, which is a continuation of Ser. No. 660,939, Feb. 24, 1976, abandoned. This application Jan. 28, 1980, Ser. No. 116,235
Claims priority, application Fed. Rep. of Germany, Feb. 26, 1975, 2508323
Int. Cl.³ H04J *3/00*
U.S. Cl. 370—58 2 Claims

4,335,457
METHOD FOR SEMICONDUCTOR MEMORY TESTING
James M. Early, Palo Alto, CA, assignor to Fairchild Camera & Instrument Corp., Mountain View, Calif.
Filed Aug. 8, 1980, Ser. No. 176,353
Int. Cl.³ G01R *31/28;* G11C *29/00*
U.S. Cl. 371—28 7 Claims

4,335,458
MEMORY INCORPORATING ERROR DETECTION AND CORRECTION
Thijs Krol, Eindhoven, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.
Filed Apr. 27, 1979, Ser. No. 34,096
Claims priority, application Netherlands, May 2, 1978, 7804674
Int. Cl.³ G06F *11/10*
U.S. Cl. 371—38 11 Claims

4,335,459
SINGLE CHIP RANDOM ACCESS MEMORY WITH INCREASED YIELD AND RELIABILITY
Richard L. Miller, P.O. Box 489, Harvard Square Post Office, Cambridge, Mass. 02238
Filed May 20, 1980, Ser. No. 151,690
Int. Cl.³ G11C *29/00*
U.S. Cl. 371—38 28 Claims

4,335,460
PRINTER SYSTEM HAVING PARITY CHECKING OF PRINT HAMMERS USING SOFTWARE CONTROL
Richard D. Bolcavage, Kirkwood; Armand J. Ferraro, Endicott, both of N.Y., and Arthur E. Fleek, Cary, N.C., assignors to International Business Machines Corporation, Armonk, N.Y.
Filed Jan. 28, 1980, Ser. No. 115,841
Int. Cl.³ G06F *11/10*
U.S. Cl. 371—49 16 Claims

4,335,461
INJECTION LASERS WITH LATERAL SPATIAL THICKNESS VARIATIONS (LSTV) IN THE ACTIVE LAYER
William Streifer, Palo Alto; Donald R. Scifres, Los Altos, and Robert D. Burnham, Los Altos Hills, all of Calif., assignors to Xerox Corporation, Stamford, Conn.
Filed Aug. 25, 1980, Ser. No. 181,262
Int. Cl.³ H01S *3/19*
U.S. Cl. 372—45 5 Claims

4,335,462
APPARATUS AND METHOD FOR GENERATING A GLOW DISCHARGE
Victor H. Hasson, and Hubertus M. Von Bergmann, both of Pretoria, South Africa, assignors to The South African Inventions Development Corporation, Pretoria, South Africa
Continuation of Ser. No. 958,858, Nov. 8, 1978, abandoned. This application Nov. 14, 1980, Ser. No. 207,095
Claims priority, application South Africa, Nov. 25, 1977, 77/7022; Feb. 5, 1978, 78/0669
Int. Cl.³ H01S *3/097*
U.S. Cl. 372—85 38 Claims

4,335,463
SIMULTANEOUS INTEGRAL MULTI-ACCESS TRANSMISSION SYSTEM ON TRANSMISSION LINES BY OPTICAL FIBRES
Joseph Foucard, Valence, France, assignor to Crouzet, Paris, France
Filed Oct. 7, 1980, Ser. No. 194,906
Claims priority, application France, Oct. 15, 1979, 79 25741
Int. Cl.³ H04K *1/04*
U.S. Cl. 375—1 1 Claim

4,335,464

DUAL MULTIPOINT DATA TRANSMISSION SYSTEM MODEM

Thomas R. Armstrong, Largo, Fla.; Gordon Bremer, Clearwater, and William Betts, Madeira Beach, all of Fla., assignors to Paradyne Corporation, Largo, Fla.

Filed Jan. 24, 1980, Ser. No. 115,118
Int. Cl.[3] H04J *1/18*
U.S. Cl. 375—43 2 Claims

4,335,465

METHOD OF PRODUCING AN ACCELLERATING ELECTRONS AND IONS UNDER APPLICATION OF VOLTAGE AND ARRANGEMENTS CONNECTED THEREWITH

Jens Christiansen, An den Hornwiesen 4, 8521 Erlangen-Buckenhof, and Christoph Schultheiss, Schleifweg 19, 8521 Erlangen-Uttenreuth, both of Fed. Rep. of Germany

Filed Jan. 31, 1979, Ser. No. 8,162
Claims priority, application Fed. Rep. of Germany, Feb. 2, 1978, 2804393
Int. Cl.[3] G21G *1/06*; H01J *17/00*
U.S. Cl. 376—156 23 Claims

4,335,466

METHOD AND APPARATUS FOR MEASURING IRRADIATED FUEL PROFILES

David M. Lee, Los Alamos, N. Mex., assignor to The United States of America as represented by the United States Department of Energy, Washington, D.C.

Filed Mar. 27, 1980, Ser. No. 134,352
Int. Cl.[3] G21C *17/00*
U.S. Cl. 376—257 16 Claims

4,335,467

LIQUID METAL COOLED NUCLEAR REACTOR

Marcel Robin, Sevres, France, assignor to Commissariat a l'Energie Atomique, Paris, France

Filed Jun. 22, 1979, Ser. No. 51,520
Claims priority, application France, Jun. 23, 1978, 78 18821
Int. Cl.[3] G21C *9/00*
U.S. Cl. 376—285 3 Claims

4,335,468

SIMULTANEOUS TRANSMISSION SIGNAL DETECTION SYSTEM

George B. Foster, 7140 Linworth Rd., Worthington, Ohio 43085, and David E. Harris, 193 Clinton Hts., Columbus, Ohio 43202

Continuation-in-part of Ser. No. 928,825, Jul. 28, 1978, abandoned. This application Jan. 9, 1980, Ser. No. 110,623
Int. Cl.[3] H04B *1/44*
U.S. Cl. 455—67 38 Claims

4,335,469

METHOD AND SYSTEM FOR RADIATING RF POWER FROM A TRAILING WIRE ANTENNA

Nelson B. Tharp, Ellicott City, and Harry F. Hartley, Glen Burnie, both of Md., assignors to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Jun. 18, 1980, Ser. No. 160,354
Int. Cl.[3] H01Q *1/30*
U.S. Cl. 455—125 7 Claims

4,335,470

AUDIO DE-EMPHASIS CIRCUIT

James C. Marsh, Jr., and Marcus L. Snell, Jr., both of Indianapolis, Ind., assignors to RCA Corporation, New York, N.Y.

Filed Oct. 29, 1980, Ser. No. 201,829
Int. Cl.[3] H04B *1/10*
U.S. Cl. 455—205 9 Claims

DESIGNS

JUNE 15, 1982

264,890
PATIENT SUPPORTING HARNESS
Rutger Nandorf, S-593 00 Västervik, Sweden
Filed Dec. 11, 1979, Ser. No. 102,572
Claims priority, application Sweden, Jun. 11, 1979, 79-1435
Term of patent 14 years
Int. Cl. D2—*02*
U.S. Cl. D2—27

264,891
WELDING SHIELD
Claes E. Rosenius, Malmö, Sweden, assignor to Tegma AB, Malmö, Sweden
Filed Nov. 14, 1979, Ser. No. 94,022
Claims priority, application Sweden, May 18, 1979, 79-1280
Term of patent 14 years
Int. Cl. D2—*03*
U.S. Cl. D2—233

264,892
TIE OR SIMILAR ARTICLE
Dennis T. Stewart, Jr., 2801 Byron St., Wheaton, Md. 20902, and Jerome N. Corbett, 12406 Applecross Dr., Clinton, Md. 20735
Filed Jan. 10, 1980, Ser. No. 111,032
Term of patent 14 years
Int. Cl. D2—*99*
U.S. Cl. D2—343

264,893
ATHLETIC GLOVE FOR GOLF, TENNIS, BASEBALL AND RACQUETBALL
Carl Schroeder, 289 NW. Cerritos Dr., Palm Springs, Calif. 92262
Filed Jan. 21, 1980, Ser. No. 113,711
Term of patent 14 years
Int. Cl. D2—*06*
U.S. Cl. D2—361

264,894
GLOVE BOX ORGANIZER
Marilyn F. Halder, 25956 Vista Dr. East, Capistrano Beach, Calif. 92624
Filed Jan. 19, 1981, Ser. No. 115,008
Term of patent 14 years
Int. Cl. D3—*02*
U.S. Cl. D3—40

264,895
FLEXIBLE HOSIERY CADDY CASE
Doris H. Hoefert, 188 River Dr., Cary, Ill. 60013
Filed Nov. 26, 1979, Ser. No. 97,224
Term of patent 14 years
Int. Cl. D3—*02*
U.S. Cl. D3—48

264,896
TOOL BOX
Donald R. Perkins, 6 Hammond Rd., Natick, Mass. 01760
Filed Sep. 24, 1979, Ser. No. 78,100
Term of patent 14 years
Int. Cl. D3—*02*
U.S. Cl. D3—74

264,897
PAINT TRAY AND LINER THEREFOR
Morley L. Smith, Beaconsfield, Canada, assignor to T. S. Simms & Co. Limited, Saint John, Canada
Filed Mar. 11, 1980, Ser. No. 129,811
Claims priority, application Canada, Feb. 4, 1980, 04-02-80-10
Term of patent 14 years
Int. Cl. D4—*99*
U.S. Cl. D4—38.2

264,898
CHAIR
Richard Baker, and Steven Baker, both of 880 Dillingham Rd., Pickering, Ontario, Canada (L1W 1Z6)
Filed Dec. 10, 1979, Ser. No. 101,909
Term of patent 14 years
Int. Cl. D6—*01*
U.S. Cl. D6—26

264,899
CHAIR
Gerd Lange, Kapsweyer, Fed. Rep. of Germany, assignor to Schlapp Moebel GmbH & Co. KG, Neu-Anspach, Fed. Rep. of Germany
Filed Mar. 20, 1979, Ser. No. 22,157
Claims priority, application Fed. Rep. of Germany, Sep. 22, 1978, 59
Term of patent 14 years
Int. Cl. D6—*01*
U.S. Cl. D6—47

264,900
CHAIR
Leon Rosen, Scarsdale, N.Y., assignor to The Pace Collection, New York, N.Y.
Filed Jun. 8, 1979, Ser. No. 46,646
Term of patent 14 years
Int. Cl. D6—*01*
U.S. Cl. D6—56

264,901
SEAT
Alan H. Friedman, Millburn, N.J., assignor to The Bean Station Furniture Factory, Bean Station, Tenn.
Filed Oct. 15, 1979, Ser. No. 84,997
Term of patent 14 years
Int. Cl. D6—*01*
U.S. Cl. D6—63

264,902
SEAT
Alan H. Friedman, Millburn, N.J., assignor to The Bean Station Furniture Factory, Bean Station, Tenn.
Filed Oct. 15, 1979, Ser. No. 85,028
Term of patent 14 years
Int. Cl. D6—*01*
U.S. Cl. D6—63

264,903
SOFA
Walter F. Dybal, Westminister, and Robert D. Anderson, Orange, both of Calif., assignors to Shelly & Anderson Furniture Mfg. Co., Compton, Calif.
Filed Apr. 15, 1980, Ser. No. 140,566
Term of patent 14 years
Int. Cl. D6—*01*
U.S. Cl. D6—63

264,904
CLOTHES HANGER HOLDER
Rolf W. Helbig, 24-6679 Shelter Bay Rd., Mississauga, Ontario, Canada (L5N 2A2)
Filed Jul. 10, 1979, Ser. No. 56,349
Claims priority, application Canada, Jun. 22, 1979, 220679
Term of patent 14 years
Int. Cl. D6—*08*; D8—*08*
U.S. Cl. D6—113

264,905
PLASTIC BAG HOLDING RACK
Gerhard Adamson, West Milford, N.J., assignor to Union Carbide Corporation, Danbury, Conn.
Filed Apr. 22, 1980, Ser. No. 142,733
Term of patent 14 years
Int. Cl. D6—*06*
U.S. Cl. D6—114

264,906
COMBINED DISPLAY AND STORAGE UNIT FOR A MODEL TRAIN
Ollie N. Franklin, Rte. 1, Box 265A, Anderson, Mo. 64831
Filed Dec. 28, 1979, Ser. No. 108,678
Term of patent 14 years
Int. Cl. D06—*04*
U.S. Cl. D6—127

264,907
COMBINED ROTATING CAFETERIA TYPE FOOD SERVICE COUNTER AND DISPLAY SHELF
Donald R. Barnhill, Hamilton, Ohio, assignor to B&W Metals Company, Inc., Fairfield, Ohio
Filed Aug. 6, 1979, Ser. No. 63,931
Term of patent 14 years
Int. Cl. D6—*03, 04*
U.S. Cl. D6—146

264,908
COMBINED CUP DISPENSER AND STRAW HOLDER
Jonathan Cooper, Clarke County, Ga., assignor to Royston Manufacturing Corporation, Royston, Ga.
Filed May 27, 1980, Ser. No. 153,432
Term of patent 14 years
Int. Cl. D9—*99*; D7—*06*
U.S. Cl. D6—157

264,909
TABLE
John W. Caldwell, 1829 Warwick Rd., San Marino, Calif. 91108
Filed Nov. 13, 1979, Ser. No. 93,212
Term of patent 14 years
Int. Cl. D6—*03*
U.S. Cl. D6—177

264,910
COMBINED SEAT AND BACKREST FOR A CHAIR
William I. Stephens, Emmaus, Pa., assignor to Knoll International, Inc., New York, N.Y.
Filed May 11, 1979, Ser. No. 38,124
Term of patent 14 years
Int. Cl. D6—*06*
U.S. Cl. D6—197

264,911
HANGER FOR ORGANIZING JEWELRY
George R. Annis, Hurst, and Warren E. Persky, Dallas, both of Tex., assignors to Item House, Inc., Dallas, Tex.
Filed Mar. 14, 1980, Ser. No. 130,265
Term of patent 14 years
Int. Cl. D6—*04, 08*
U.S. Cl. D6—248

264,912
GARMENT HANGER
Malcolm Bliss, Ridgefield, Conn., and David McCalmont, Bloomfield, N.J., assignors to J. C. Penney Co., Inc., New York, N.Y.
Filed Jul. 1, 1980, Ser. No. 164,940
Term of patent 14 years
Int. Cl. D6—*08*
U.S. Cl. D6—254

264,913
FOOD DISH
James F. Pomroy, St. Paul, Minn., assignor to Plastics, Inc., St. Paul, Minn.
Filed Oct. 13, 1977, Ser. No. 841,694
Term of patent 14 years
Int. Cl. D07—*01*
U.S. Cl. D7—21

264,914
DINNER PLATE OR SIMILAR ARTICLE
Frank A. Warren, Denville, N.J., assignor to Syracuse China Corporation, Syracuse, N.Y.
Filed Jun. 19, 1980, Ser. No. 161,117
Term of patent 14 years
Int. Cl. D07—*01*
U.S. Cl. D7—23

264,915
DINNER PLATE OR SIMILAR ARTICLE
Frank A. Warren, Denville, N.J., assignor to Syracuse China Corporation, Syracuse, N.Y.
Filed Jun. 19, 1980, Ser. No. 161,118
Term of patent 14 years
Int. Cl. D07—*01*
U.S. Cl. D7—23

264,916
DINNER PLATE OR SIMILAR ARTICLE
Alan H. Friedman, Millburn, N.J., assignor to Syracuse China Corporation, Syracuse, N.Y.
Filed Jul. 25, 1980, Ser. No. 172,145
Term of patent 14 years
Int. Cl. D07—*01*
U.S. Cl. D7—23

264,917
DINNER PLATE OR SIMILAR ARTICLE
Alan H. Friedman, Millburn, N.J., assignor to Syracuse China Corporation, Syracuse, N.Y.
Filed Jul. 25, 1980, Ser. No. 172,146
Term of patent 14 years
Int. Cl. D07—*01*
U.S. Cl. D7—23

264,918
DINNER PLATE OR SIMILAR ARTICLE
David P. G. Williams, Englewood, N.J., assignor to Syracuse China Corporation, Syracuse, N.Y.
Filed Sep. 15, 1980, Ser. No. 187,210
Term of patent 14 years
Int. Cl. D07—*01*
U.S. Cl. D7—23

264,919
DINNER PLATE OR SIMILAR ARTICLE
Frank A. Warren, Denville, N.J., assignor to Syracuse China Corporation, Syracuse, N.Y.
Filed Jun. 19, 1980, Ser. No. 161,119
Term of patent 14 years
Int. Cl. D07—*01*
U.S. Cl. D7—35

264,920
DINNER PLATE OR SIMILAR ARTICLE
Frank A. Warren, Denville, N.J., assignor to Syracuse China Corporation, Syracuse, N.Y.
Filed Jun. 19, 1980, Ser. No. 161,120
Term of patent 14 years
Int. Cl. D07—*01*
U.S. Cl. D7—35

264,921
DINNER PLATE OR SIMILAR ARTICLE
Frank A. Warren, Denville, N.J., assignor to Syracuse China Corporation, Syracuse, N.Y.
Filed Jun. 19, 1980, Ser. No. 161,121
Term of patent 14 years
Int. Cl. D07—*01*
U.S. Cl. D7—35

264,922
DINNER PLATE OR SIMILAR ARTICLE
Frank A. Warren, Denville, N.J., assignor to Syracuse China Corporation, Syracuse, N.Y.
Filed Jul. 14, 1980, Ser. No. 168,692
Term of patent 14 years
Int. Cl. D07—*01*
U.S. Cl. D7—35

264,923
DINNER PLATE OR SIMILAR ARTICLE
Frank A. Warren, Denville, N.J., assignor to Syracuse China Corporation, Syracuse, N.Y.
Filed Jul. 14, 1980, Ser. No. 168,695
Term of patent 14 years
Int. Cl. D07—*01*
U.S. Cl. D7—35

264,924
CUTTING AND SERVING BOARD OR THE LIKE
James B. Swett, Altamonte Springs, Fla., assignor to Dart Industries, Inc., Northbrook, Ill.
Filed Apr. 28, 1980, Ser. No. 144,467
Term of patent 14 years
Int. Cl. D07—*04*
U.S. Cl. D7—46

264,925
STAPLER
Michael Bass, North Plainfield, and Charles P. Housel, Hackettstown, both of N.J., assignors to The Bates Manufacturing Company, Hackettstown, N.J.
Filed Oct. 3, 1979, Ser. No. 81,385
Term of patent 14 years
Int. Cl. D19—*02*
U.S. Cl. D8—50

264,926
PITCHER WITH SCREW TOP
Donald R. McClelland, Wooster, Ohio, assignor to Rubbermaid Incorporated, Wooster, Ohio
Filed Jul. 2, 1980, Ser. No. 164,549
Term of patent 14 years
Int. Cl. D07—*01*
U.S. Cl. D7—65

264,927
CAN HOLDER
Karl A. Kurzius, 4246 Eubank, NE, Albuquerque, N. Mex. 87111
Filed Aug. 18, 1980, Ser. No. 179,342
Term of patent 14 years
Int. Cl. D07—*99*
U.S. Cl. D7—70

264,928
POT OR PAN RESTRAINT WITH SLOTTED BASE FOR ENGAGING RADIAL BARS OF RECREATION VEHICLE STOVE TOP GRATING
Dominic J. DiFede, 2431 Tartarian Way, Union City, Calif. 94587
Filed Apr. 7, 1980, Ser. No. 138,157
Term of patent 14 years
Int. Cl. D7—*99*
U.S. Cl. D7—136

264,929
GARDEN TOOL
Peter Haddad, 118 Taylor St., Titusville, Fla. 32780
Filed Dec. 4, 1978, Ser. No. 966,102
Term of patent 14 years
Int. Cl. D8—*01*
U.S. Cl. D8—09

264,930
DRILL GUIDE
Raymond Lindsay, Arcadia, Calif., assignor to The La-Bar Co., Inc., Duarte, Calif.
Filed Jul. 25, 1979, Ser. No. 60,507
Term of patent 14 years
Int. Cl. D8—*05*
U.S. Cl. D8—70

264,931
HAMMER IMPLEMENT HEAD
Dale A. Jones, Rte. One, Palmetto, Ga. 30268
Division of Ser. No. 857,797, Dec. 5, 1977, Pat. No. Des. 257,826. This application Apr. 4, 1980, Ser. No. 137,377
Term of patent 14 years
Int. Cl. D8—*02*
U.S. Cl. D8—78

264,932
EMERGENCY EXIT DOOR LATCH WITH PANIC BAR
Joseph T. Miller, Frederick, and Roy E. VanDerLinden, New Windsor, both of Md., assignors to Reliable Security Systems, Cockeysville, Md.
Filed Oct. 1, 1979, Ser. No. 80,251
Term of patent 14 years
Int. Cl. D8—*07*
U.S. Cl. D8—315

264,933
METER BOX PADLOCK
Marvin G. Woempner, Rte. 4, Box 707, Thomasville, N.C. 27360
Filed May 5, 1980, Ser. No. 146,912
Term of patent 14 years
Int. Cl. D8—*07*
U.S. Cl. D8—334

264,934
ROPE HOOK
Kenneth Brooks, 469 S. Delaware Ave., Lindenhurst, N.Y. 11757
Filed May 16, 1980, Ser. No. 150,315
Term of patent 14 years
Int. Cl. D8—*08*
U.S. Cl. D8—367

264,935
COMBINED SUPPORT AND DISPLAY BRACKET FOR A SELF-CONTAINED BREATHING APPARATUS
Theodore Ziaylek, Jr., Yardley, Pa., assignor to Ziamatic Corporation, Yardley, Pa.
Filed Jun. 13, 1980, Ser. No. 159,033
Term of patent 14 years
Int. Cl. D6—*04;* D8—*08*
U.S. Cl. D8—373

264,936
CURTAIN ROD
Damien Ross, 1615 Gouin Blvd. West, Montreal, Quebec, Canada
Filed Apr. 29, 1980, Ser. No. 144,176
Claims priority, application Canada, Feb. 13, 1980, 13-02-80-1
Term of patent 14 years
Int. Cl. D8—*08*
U.S. Cl. D8—376

264,937
BOTTLE
James B. Groark, London, England, assignor to Seagram United Kingdom Limited, Great Britain
Filed Jun. 27, 1980, Ser. No. 163,575
Term of patent 14 years
Int. Cl. D9—*01*
U.S. Cl. D9—349

264,938
BOTTLE OR THE LIKE
Hugh J. Stock, Saratoga, Calif., assignor to Pacer Technology & Resources, Inc., Campbell, Calif.
Filed Jul. 21, 1980, Ser. No. 170,518
Term of patent 14 years
Int. Cl. D9—*01*
U.S. Cl. D9—352

264,939
BOTTLE OR THE LIKE
Hugh J. Stock, Saratoga, Calif., assignor to Pacer Technology & Resources, Inc., Campbell, Calif.
Filed Jul. 21, 1980, Ser. No. 170,519
Term of patent 14 years
Int. Cl. D9—*01*
U.S. Cl. D9—352

264,940
BOTTLE OR THE LIKE
Hugh J. Stock, Saratoga, Calif., assignor to Pacer Technology and Resources, Inc., Campbell, Calif.
Filed Aug. 25, 1980, Ser. No. 180,649
Term of patent 14 years
Int. Cl. D9—*01*
U.S. Cl. D9—352

264,941
BOTTLE OR THE LIKE
Hugh J. Stock, Saratoga, Calif., assignor to Pacer Technology and Resources, Inc., Campbell, Calif.
Filed Aug. 25, 1980, Ser. No. 180,665
Term of patent 14 years
Int. Cl. D9—*01*
U.S. Cl. D9—370

264,942
BOTTLE
Warren J. Schieser, Dublin, and Craig L. Duffey, Galena, both of Ohio, assignors to Liqui-Box Corporation, Worthington, Ohio
Filed May 27, 1980, Ser. No. 153,191
Term of patent 14 years
Int. Cl. D9—*01*
U.S. Cl. D9—401

264,943
HOUSING FOR CLOCK OR TIMER
Gene R. Hammond, Torrington, Conn., assignor to Cole & Mason U.S.A., Ltd., Great Neck, N.Y.
Filed May 6, 1980, Ser. No. 147,403
Term of patent 14 years
Int. Cl. D10—*01*
U.S. Cl. D10—1

264,944
CLOCK
Gerald C. Palmer, Eagan, Minn., assignor to Sakon Industries, Inc., New York, N.Y.
Filed Jun. 16, 1980, Ser. No. 159,683
Term of patent 14 years
Int. Cl. D10—*01*
U.S. Cl. D10—15

264,945
WRISTWATCH
Brian Pennell, 9 Cod Fish La., Weston, Conn. 06883
Filed Feb. 4, 1980, Ser. No. 118,497
Term of patent 14 years
Int. Cl. D10—*02*
U.S. Cl. D10—32

264,946
WATCHCASE
Yoshio Hirabayashi, Suwa, Japan, assignor to Kabushiki Kaisha Suwa Seikosha, Tokyo, Japan
Filed May 9, 1980, Ser. No. 148,334
Claims priority, application Japan, Nov. 12, 1979, 47297
Term of patent 14 years
Int. Cl. D10—*02*
U.S. Cl. D10—38

264,947
RING
George J. Solow, 7 Fieldstone La., Great Neck, N.Y. 11020; Jack Guttschneider, 200 E. 71st St., New York, N.Y. 10021, and Peter H. Solow, 6 Madison Ave., Jericho, N.Y. 11753
Filed Mar. 31, 1980, Ser. No. 136,295
Term of patent 14 years
Int. Cl. D11—*01*
U.S. Cl. D11—36

264,948
MEDALLION
Thaddeus Krawchuk, and Christine Opalinski, both of Winnipeg, Canada, assignors to Ukrainian Catholic Mission of the Most Holy Redeemer, Winnipeg, Canada
Filed Apr. 21, 1980, Ser. No. 142,074
Term of patent 14 years
Int. Cl. D11—*01*
U.S. Cl. D11—96

264,949
TREE ORNAMENT
Lucy Smart, 229 51st St., Lindenhurst, N.Y. 11791
Filed May 23, 1980, Ser. No. 152,654
Term of patent 14 years
Int. Cl. D11—*05*
U.S. Cl. D11—118

264,950
FIGURINE OF A KOALA BEAR
Jesus A. Santa-Eulalia Carbajales, and Javier B. Santa-Eulalia Carbajales, both of Montevideo, Uruguay, assignors to John J. Madison Company, Inc., Laguna Hills, Calif.
Filed Mar. 9, 1979, Ser. No. 19,229
Term of patent 14 years
Int. Cl. D11—*02*
U.S. Cl. D11—158

264,951
FIGURINE OF A HUSKY PUP
Jesus A. Santa-Eulalia Carbajales, and Javier B. Santa-Eulalia Carbajales, both of Montevideo, Uruguay, assignors to John J. Madison Company, Inc., Laguna Hills, Calif.
Filed Oct. 4, 1979, Ser. No. 81,912
Term of patent 14 years
Int. Cl. D11—*02*
U.S. Cl. D11—158

264,952
FIGURINE OF A SEAL
Jesus A. Santa-Eulalia Carbajales, and Javier B. Santa-Eulalia Carbajales, both of Montevideo, Uruguay, assignors to John J. Madison Company, Inc., Laguna Hills, Calif.
Filed Dec. 17, 1979, Ser. No. 104,694
Term of patent 14 years
Int. Cl. D11—*02*
U.S. Cl. D11—158

264,953
MOTORTRICYCLE
Hiroshi Shimoyama, Fujimi, Japan, assignor to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan
Filed Jul. 30, 1979, Ser. No. 62,227
Claims priority, application Japan, Feb. 6, 1979, 54/4217
Term of patent 14 years
Int. Cl. D12—*11*
U.S. Cl. D12—110

264,954
BICYCLE BOTTLE CAGE
James R. Blackburn, Campbell, Calif., assignor to Jim Blackburn Designs, Campbell, Calif.
Filed Aug. 29, 1979, Ser. No. 70,854
Term of patent 14 years
Int. Cl. D12—*11*
U.S. Cl. D12—114

264,955
STROLLER
Frederick M. Johnson, 762 Lazy Circle Dr., Vista, Calif. 92083
Filed May 15, 1980, Ser. No. 149,822
Term of patent 14 years
Int. Cl. D12—*12*
U.S. Cl. D12—129

264,956
TIRE
Claude A. Hart, Sutton Coldfield, England, assignor to Dunlop Limited, London, England
Filed Jul. 9, 1980, Ser. No. 167,062
Claims priority, application United Kingdom, Feb. 2, 1980, 80993439
Term of patent 14 years
Int. Cl. D12—*15*
U.S. Cl. D12—146

264,957
CENTER HUB FOR A STEERING WHEEL
John R. Schinella, 3317 Greentree Dr., Bloomfield Hills, Mich. 48013, and Herbert L. Adams, III, 1036 San Carlos Rd., Pebble Beach, Calif. 93953
Filed Mar. 15, 1979, Ser. No. 20,659
Term of patent 14 years
Int. Cl. D12—*16*
U.S. Cl. D12—176

264,958
WHEEL ASSEMBLY FOR POULTRY CAGE-TOP SERVICE VEHICLE
Gerald L. Kitson, 9709 Belding Rd. NE., Rockford, Mich. 49341
Continuation of Ser. No. 577,196, May 14, 1975, abandoned, which is a continuation of Ser. No. 315,288, Dec. 15, 1972, abandoned, which is a division of Ser. No. 160,244, Jun. 6, 1971, Pat. No. Des. 288,024. This application Dec. 29, 1976, Ser. No. 755,580
Term of patent 14 years
Int. Cl. D12—*16*
U.S. Cl. D12—204

264,959
TRANSFORMER CORE MEMBER
Junpei Ota, Matsudo; Masaru Wasaki, Chiba, and Tadashi Mitsui, Tokyo, all of Japan, assignors to TDK Electronics Co. Ltd., Tokyo, Japan
Filed Jun. 22, 1979, Ser. No. 51,005
Claims priority, application Japan, Jan. 25, 1979, 54-002041
Term of patent 14 years
Int. Cl. D13—*02*
U.S. Cl. D13—4

264,960
HOUSING FOR A SILICON CONTROLLED RECTIFIER DEVICE
Ronald Secrest, P.O. Box 61, Langhorne, Pa. 19047
Filed Oct. 9, 1979, Ser. No. 82,500
Term of patent 14 years
Int. Cl. D13—*02*
U.S. Cl. D13—4

264,961
COVER FOR BATTERY CASE
Terry Oxenreider, Wernersville, Pa., assignor to General Battery Corporation, Reading, Pa.
Filed Mar. 6, 1980, Ser. No. 127,730
Term of patent 14 years
Int. Cl. D13—*02*
U.S. Cl. D13—10

264,962
PORTABLE POWER SOURCE FOR A GRASS CUTTER
Ruedi Fellmann, Dietlikon, Switzerland, assignor to Max Langenstein Feld- und Gartelgeräte, Illertissen, Fed. Rep. of Germany
Filed Mar. 24, 1980, Ser. No. 133,329
Claims priority, application Fed. Rep. of Germany, Sep. 24, 1979, MR898
Term of patent 14 years
Int. Cl. D13—*01*
U.S. Cl. D13—11

264,963
COMPONENT MOUNTING PLATE FOR A PC BOARD INDICATOR AND CONTROL DEVICE
Ralph J. McComas, Boulder Creek, Calif., assignor to Perception Electronics, Inc., San Jose, Calif.
Filed Jun. 1, 1979, Ser. No. 44,523
Term of patent 14 years
Int. Cl. D13—*03*
U.S. Cl. D13—12

264,964
HEAT SINK OR SIMILAR ARTICLE
Howard G. Hinshaw, Dallas, Tex., assignor to Thermalloy Incorporated, Dallas, Tex.
Filed Jul. 14, 1980, Ser. No. 168,541
Term of patent 14 years
Int. Cl. D13—*03*
U.S. Cl. D13—23

264,965
ELECTRICAL CONNECTOR ADAPTER
Robert H. Frantz, Newville, Pa., assignor to AMP Incorporated, Harrisburg, Pa.
Filed Dec. 17, 1979, Ser. No. 103,875
Term of patent 14 years
Int. Cl. D13—*03*
U.S. Cl. D13—24

264,966
VIDEO TAPE MAGAZINE
Kimiyoshi Ban, Kasukabe, Japan, assignor to Tokyo Shibaura Denki Kabushiki Kaisha, Kawasaki, Japan
Filed Jun. 24, 1980, Ser. No. 161,306
Claims priority, application Japan, Dec. 26, 1979, 54-54358
Term of patent 14 years
Int. Cl. D14—*01*
U.S. Cl. D14—11

264,967
TELEPHONE CONSOLE
Alfred R. Ender, West Windsor Township, Mercer County, and Robert F. Iacullo, Tenafly, both of N.J., assignors to Western Electric Company, Incorporated, New York, N.Y.
Filed May 8, 1980, Ser. No. 147,779
Term of patent 14 years
Int. Cl. D14—*03*
U.S. Cl. D14—56

264,968
RADIO TRANSMITTER
Keisuke Iwata, Tokyo, Japan, assignor to Iwata Electric Co., Ltd., Tokyo, Japan
Filed Jul. 23, 1979, Ser. No. 59,987
The portion of the term of this patent subsequent to Jul. 22, 1994, has been disclaimed.
Term of patent 14 years
Int. Cl. D14—*03*
U.S. Cl. D14—95

264,969
CABINET FOR ELECTRONIC EQUIPMENT
Michael J. McGourty, Littleport, England, assignor to Pye (Electronic Products) Limited, Cambridge, England
Filed Feb. 9, 1979, Ser. No. 10,878
Claims priority, application United Kingdom, Nov. 8, 1978, 985888/78; Nov. 8, 1978, 985889/78
Term of patent 14 years
Int. Cl. D14—*03*
U.S. Cl. D14—96

264,970
FLOPPY DISK READER/RECORDER OR THE LIKE
Vincent Giannotti, Jr., Austin, Tex., assignor to International Business Machines Corporation, Armonk, N.Y.
Filed Jun. 16, 1980, Ser. No. 159,714
Term of patent 14 years
Int. Cl. D14—*02*
U.S. Cl. D14—109

264,971
MODULAR COMPUTER SYSTEM PRINTER
George E. Chadima, Jr., Cedar Rapids, Iowa, assignor to Norand Corporation, Cedar Rapids, Iowa
Filed Nov. 5, 1979, Ser. No. 91,184
Term of patent 14 years
Int. Cl. D14—*02*
U.S. Cl. D14—111

264,972
FLUID PUMP
John R. McMillin, Maplewood, Minn., and Gene A. Tracy, Amery, Wis., assignors to The Coca-Cola Company, Atlanta, Ga. and The Cornelius Company, Anoka, Minn.
Filed Jan. 31, 1980, Ser. No. 117,339
Term of patent 14 years
Int. Cl. D15—*02*
U.S. Cl. D15—7

264,973
SEWING MACHINE CONTROLLER
Susumu Hanyu, Hachioji, Japan, assignor to Janome Sewing Machine Co. Ltd., Tokyo, Japan
Filed Nov. 1, 1979, Ser. No. 90,484
Claims priority, application Japan, Sep. 7, 1979, 54-37475
Term of patent 14 years
Int. Cl. D15—*99*
U.S. Cl. D15—72

264,974
APPARATUS FOR CLEANING DRILLING MUD AND FLUIDS
Don D. Summers, P.O. Box 30106, Lafayette, La. 70503
Filed Feb. 6, 1980, Ser. No. 119,092
Term of patent 14 years
Int. Cl. D15—*09*
U.S. Cl. D15—199

264,975
PHOTOGRAPHIC CAMERA
Norbert Schlagheck; Herbert Schultes, both of Fuerstenfeldbruck, and Karlheinz Rubner, Munich, all of Fed. Rep. of Germany, assignors to AGFA-Gevaert AG, Leverkusen, Fed. Rep. of Germany
Filed Dec. 10, 1979, Ser. No. 102,322
Claims priority, application Fed. Rep. of Germany, Sep. 6, 1979, 5MR559G163791
Term of patent 14 years
Int. Cl. D16—*01*
U.S. Cl. D16—1

264,976
EYE GLASS CASE
Dorothy R. Greene, 28064 Fairacres La., P.O. Box 69, Helendale, Calif. 92342
Filed Mar. 31, 1980, Ser. No. 135,707
Term of patent 14 years
Int. Cl. D16—*99*
U.S. Cl. D16—129

264,977
DRUM MALLET
Robert Starks, 1831 N. Gramercy Pl., Hollywood, Calif. 90028
Filed Mar. 17, 1980, Ser. No. 131,145
Term of patent 14 years
Int. Cl. D17—*04*
U.S. Cl. D17—22

264,978
PRINTING DEVICE
Toshiro Ohno, Tokyo, Japan, assignor to Oki Electric Industry Co., Ltd., Tokyo, Japan
Filed Sep. 4, 1980, Ser. No. 184,190
Claims priority, application Japan, Mar. 14, 1980, 55-009698
Term of patent 14 years
Int. Cl. D18—*02*
U.S. Cl. D18—13

264,979
CALENDAR HOLDER
Edward J. Goldman, P.O. Box 2113, Mansfield, Mass. 02048
Filed Jul. 28, 1980, Ser. No. 173,088
Term of patent 14 years
Int. Cl. D19—*03*
U.S. Cl. D19—20

264,980
MECHANICAL GAME
Michael W. Nuttall, Pasadena, Calif., assignor to Tomy Kogyo Co., Inc., Tokyo, Japan
Filed May 18, 1979, Ser. No. 40,598
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D21—2

264,981
DOLL HOUSE OR SIMILAR ARTICLE
Charles L. Clemons, 2180 Hillside Dr., Eau Claire, Wis. 54701
Filed Mar. 10, 1980, Ser. No. 128,954
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D21—114

264,982
TOY CAROUSEL
Hubert H. Jackson, 1875 Catalpa Way, Hayward, Calif. 94545
Filed Mar. 31, 1980, Ser. No. 135,520
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D21—124

264,983
EXERCISER
Terry Logan, 1004 Michigan Ave., Santa Monica, Calif. 90404
Filed Sep. 21, 1979, Ser. No. 77,736
Term of patent 14 years
Int. Cl. D21—*02*
U.S. Cl. D21—198

264,984
ICE SKATE BLADE
Icaro Olivieri, Montebelluna, Italy, assignor to Gamebridge Inc., St. Jerome, Canada
Filed Jun. 24, 1980, Ser. No. 162,602
Term of patent 14 years
Int. Cl. D21—*02*
U.S. Cl. D21—225

264,985
SKI ROPE HANDLE AND HOLDER
Terry M. Haber, Santa Ana, Calif.; James H. Wilson, 29962 Happy Sparran, Laguna Niguel, Calif. 92677, and Edward E. Darrow, 1811 Bridal Path Way, Santa Ana, Calif. 92705, assignors to James H. Wilson and Edward E. Darrow, both of Laguna Niguel, Calif., a part interest
Filed May 19, 1980, Ser. No. 151,198
Term of patent 14 years
Int. Cl. D21—*02*
U.S. Cl. D21—230

264,986
BOWLING PIN CORE
Herbert J. Booms, 1723 S. Van Dyke, Bad Axe, Mich. 48413
Filed Apr. 28, 1980, Ser. No. 145,581
Term of patent 14 years
Int. Cl. D21—*02*
U.S. Cl. D21—233

264,987
ROCKING TOY
Maebelle C. Wise, P.O. Box 453, Munday, Tex. 76371
Filed Jul. 22, 1980, Ser. No. 171,085
Term of patent 14 years
Int. Cl. D21—*03*
U.S. Cl. D21—251

264,988
FISHING REEL FOR MOUNTING ON ARCHERY BOW
Robert L. Finlay, Emporia, Kans., assignor to BPE, Inc., Emporia, Kans.
Filed Aug. 25, 1980, Ser. No. 180,868
Term of patent 14 years
Int. Cl. D22—*05*
U.S. Cl. D22—25

264,989
SUPPORT DEVICE FOR SIGHTING FIREARMS
Agneta S. Palm nee Wohlfahrt, Prostvägen 43, S-871 00 Härnösand; Lars Wohlfart, Sjötullsbacken 15, S-155 25 Stockholm, and Thomas Wohlfahrt, Bygatan 20, S-260 40 Viken, all of Sweden
Filed Oct. 4, 1978, Ser. No. 948,443
Claims priority, application Sweden, Apr. 4, 1978, 78-909
Term of patent 14 years
Int. Cl. D22—*99*
U.S. Cl. D22—99

264,990
WOOD AND COAL BURNING STOVE
Peter Kilham, Box 98, Mill Rd., Foster, R.I. 02825
Filed Jun. 16, 1980, Ser. No. 160,101
Term of patent 14 years
Int. Cl. D23—*03*
U.S. Cl. D23—97

264,991
APPARATUS FOR PREPARING SPECIMENS FOR HISTOLOGICAL EXAMINATION
Robert S. Quandt, Libertyville, Ill., assignor to Sybron Corporation, Rochester, N.Y.
Filed Jun. 12, 1980, Ser. No. 158,855
Term of patent 14 years
Int. Cl. D24—*02*
U.S. Cl. D24—8

264,992
HYDROTHERAPY SPA
Lino Z. Topete, 1845 E. San Antonio St., San Jose, Calif. 95116
Filed Nov. 19, 1979, Ser. No. 95,206
Term of patent 14 years
Int. Cl. D24—*01;* D23—*02;* D25—*99*
U.S. Cl. D24—38

264,993
SIMULATED BREAST NURSER
Judith Kestenberg, New York, N.Y., assignor to Child Development Research, Sands Point, N.Y.
Filed Oct. 24, 1979, Ser. No. 88,042
Term of patent 14 years
Int. Cl. D24—*04*
U.S. Cl. D24—47

264,994
CANISTER FOR LIQUID MEDICATION AND WATER
S. Mark Rippley, 302 Island Dr., Richardson, Tex. 75081
Filed Apr. 11, 1980, Ser. No. 139,355
Term of patent 14 years
Int. Cl. D24—*04*
U.S. Cl. D24—56

264,995
RESTAURANT BUILDING
John E. Gearhart, Mt. Wolf, Pa.
Filed Jul. 2, 1980, Ser. No. 165,364
Term of patent 14 years
Int. Cl. D25—*03*
U.S. Cl. D25—11

264,996
SCULPTURED VENTILATING CONCRETE BLOCK
Arnold C. Siedschlag, 3219 E. Earll Dr., Phoenix, Ariz. 85018
Filed Apr. 11, 1980, Ser. No. 139,351
Term of patent 14 years
Int. Cl. D25—*01*
U.S. Cl. D25—91

264,997
VENTILATING CONCRETE BLOCK
Arnold C. Siedschlag, Phoenix, Ariz., assignor to Warren F. B. Lindsley, Phoenix, Ariz., a part interest
Filed Apr. 11, 1980, Ser. No. 139,279
Term of patent 14 years
Int. Cl. D25—*01*
U.S. Cl. D25—97

264,998
LOUVERED CONCRETE BLOCK
Arnold C. Siedschlag, Phoenix, Ariz., assignor to Warren F. B. Lindsley, Phoenix, Ariz., a part interest
Filed Apr. 11, 1980, Ser. No. 139,350
Term of patent 14 years
Int. Cl. D25—*01*
U.S. Cl. D25—97

264,999
CIGARETTE LIGHTER
Laura S. Eisenberg, Mt. Vernon, N.Y., assignor to Seymour C. Yuter, Briarcliff Manor, N.Y.
Filed Dec. 20, 1979, Ser. No. 105,716
Term of patent 14 years
Int. Cl. D27—*05*
U.S. Cl. D27—41

265,000
PORTABLE FLUORESCENT LIGHT
Noel E. Zeller, White Plains, N.Y., assignor to Zelco Industries, Inc., Mt. Vernon, N.Y.
Filed Feb. 28, 1980, Ser. No. 120,131
Term of patent 14 years
Int. Cl. D26—*02*
U.S. Cl. D26—42

265,001
LAMP
Ellis M. Graham, 6316 Linwood Ave., Norfolk, Va. 23513
Filed Jan. 23, 1979, Ser. No. 6,334
Term of patent 14 years
Int. Cl. D26—*05*
U.S. Cl. D26—104

265,002
RADIANT HEAT HAIR DRYER
Otto Hubner, Mauerkircher Strasse 199, Herzog Park, Munich (8000 Munchen 81), Fed. Rep. of Germany
Filed Jan. 24, 1980, Ser. No. 114,850
Term of patent 14 years
Int. Cl. D28—*03*
U.S. Cl. D28—13

265,003
CURLING IRON
Steven R. Groner, Glen Ellyn, Ill., assignor to Sunbeam Corporation, Chicago, Ill.
Filed Jul. 11, 1980, Ser. No. 167,587
Term of patent 14 years
Int. Cl. D28—*03*
U.S. Cl. D28—35

265,004
DENTAL FLOSS HOLDER
Michael D. Davis, Box 25, Sadorus, Ill. 61872
Filed Apr. 7, 1980, Ser. No. 138,200
Term of patent 14 years
Int. Cl. D24—*99*
U.S. Cl. D28—64

265,005
ELECTRIC AMBIENT AIR BREATHING PUMP
Edwin Reinhorn, 8402-E N. Magnolia, Santee, Calif. 92071
Filed May 12, 1980, Ser. No. 149,277
Term of patent 14 years
Int. Cl. D24—*01*; D15—*02*
U.S. Cl. D29—7

265,006
FILTERING FACE PIECE
William T. Levy, London, England, assignor to Martindale Protection Limited, London, England
Filed Oct. 3, 1979, Ser. No. 81,441
Claims priority, application United Kingdom, Apr. 4, 1979, 989357
Term of patent 14 years
Int. Cl. D29—*99*
U.S. Cl. D29—8

265,007
SNOW REMOVAL DEVICE
Robert J. Cuta, 5017 Twin Oaks Dr., Madison, Wis. 53714
Filed Feb. 28, 1980, Ser. No. 125,691
Term of patent 14 years
Int. Cl. D7—*05*
U.S. Cl. D32—49

265,008
APPLIQUE FOR A SHIRT OR THE LIKE
E'Su B. O'Bassey, Newcastle upon Tyne, England, assignor to Continents Five Agencies Limited, Newcastle upon Tyne, England
Filed Dec. 10, 1979, Ser. No. 101,683
Claims priority, application United Kingdom, Jun. 15, 1979, 990313
Term of patent 14 years
Int. Cl. D5—*04*
U.S. Cl. D33—32 R

265,009
BOTTLE CRATE
Theodor M. Box, Brielle, N.J., assignor to Cities Service Company, Tulsa, Okla.
Filed May 1, 1980, Ser. No. 145,490
Term of patent 14 years
Int. Cl. D9—*04*
U.S. Cl. D34—40

265,010
CARRIER FOR CONTAINERS OR THE LIKE
Prentice J. Wood, Hapeville, Ga., assignor to The Mead Corporation, Dayton, Ohio
Filed May 19, 1980, Ser. No. 151,532
Term of patent 14 years
Int. Cl. D9—*04*
U.S. Cl. D34—44

265,011
EXPANDED PANEL OF EXTRUDED METAL
William L. Jury, Royal Park, Australia, assignor to John McIlwraith Industries, Ltd., Royal Park, Australia
Filed Mar. 28, 1980, Ser. No. 134,790
Claims priority, application Australia, Oct. 2, 1979, 79,143
Term of patent 14 years
Int. Cl. D25—*01*
U.S. Cl. D92—26

265,012
SAFE WITH DEPOSIT BOX
Dieter Eppler, Geesthacht, and Karl-Heinz Kremson, Hamburg, both of Fed. Rep. of Germany, assignors to Hauni-Werke Körber & Co. KG, Hamburg, Fed. Rep. of Germany
Filed Apr. 30, 1980, Ser. No. 145,045
Claims priority, application Fed. Rep. of Germany, Nov. 8, 1979, MR 10887
Term of patent 14 years
Int. Cl. D99—*00*
U.S. Cl. D99—28

265,013
SAFE
Dieter Eppler, Geesthacht, and Karl-Heinz Kremson, Hamburg, both of Fed. Rep. of Germany, assignors to Hauni-Werke Körber & Co. KG, Hamburg, Fed. Rep. of Germany
Filed Apr. 30, 1980, Ser. No. 145,046
Claims priority, application Fed. Rep. of Germany, Nov. 8, 1979, MR 10887
Term of patent 14 years
Int. Cl. D99—*00*
U.S. Cl. D99—28

265,014

SAFE DEPOSIT BOX

Dieter Eppler, Geesthacht, and Karl-Heinz Kremson, Hamburg, both of Fed. Rep. of Germany, assignors to Hauni-Werke Körber & Co. KG, Hamburg, Fed. Rep. of Germany

Filed Apr. 30, 1980, Ser. No. 145,047

Claims priority, application Fed. Rep. of Germany, Nov. 8, 1979, 10887

Term of patent 14 years

Int. Cl. D99—*00*

U.S. Cl. D99—28

REISSUES

JULY 20, 1982

Matter enclosed in heavy brackets [ ] appears in the original patent but forms no part of this reissue specification; matter printed in italics indicates additions made by reissue.

Re. 30,996

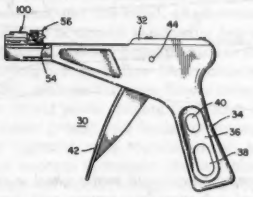
STRAP TENSION SENSING AND CUT OFF MECHANISM

Walter Pobuta, Elizabeth, and Charles Dolgos, Linden, both of N.J., assignors to Thomas & Betts Corporation, Raritan, N.J.

Original No. 4,064,918, dated Dec. 27, 1977, Ser. No. 776,489, Mar. 10, 1977. Application for reissue Dec. 4, 1979, Ser. No. 100,119

Int. Cl.³ B21F *9/02*

U.S. Cl. 140—123.6 29 Claims



1. A strap tension sensing and cut off mechanism comprising: stationary block means having a first end and a second end and an intermediate wall intermediate said first and second ends; movable block means having a first end and a second end, said movable block means first end adjacent said stationary block means first end and said movable block means second end adjacent said intermediate wall; means for applying a force to said first end of said movable block means; pin means having a first position in engagement with said movable block means to prevent the movement of said movable block means in response to the force applied thereto and a second position out of engagement with said movable block means to permit movement of said movable block means in response to the force applied thereto; and selectively presettable means coupled to said stationary block means for applying a selected restraining force to said pin means to position said pin means in said first position; said pin means moved from said first to said second position when the force applied to said first end of said movable block means exceeds the selected restraining force upon said pin means.

Re. 30,997

TAPER HEADED FASTENER TO INCREASE WORK FATIGUE LIFE

Franklin S. Briles, 1301 Dolphin, Corona del Mar, Calif. 92625

Original No. 4,050,833, dated Sep. 27, 1977, Ser. No. 600,388, Jul. 30, 1975. Application for reissue Jan. 16, 1979, Ser. No. 3,867

Int. Cl.³ F16B *5/02*

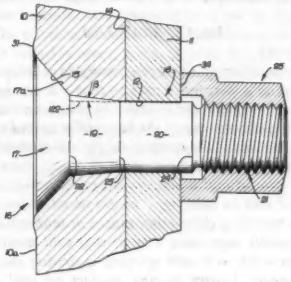
U.S. Cl. 403—388 9 Claims

1. In a fastening assembly capable of displacing work material between first and second locations, the first location being proximate the junction between a workbore and a conical countersink surface in the work, the second location being at the work surface adjacent and closely bounding the countersink surface, the combination that comprises:

a. a fastener head and shank, the head being conical to closely interfit the work countersink surface, the conical head defining an included conical angle of at least about 100°,

b. the shank defining first, second and third sections in a lengthwise axially forward sequence away from the head, the third section being threaded to receive a tightening nut, the second section being cylindrical and having an outer diameter to closely fit the workbore diameter,

c. the first shank section being conically tapered forwardly away from the head and toward the second section and being sufficiently oversized in relation to the workbore that interference force will develop in response to forward displacement and seating of the fastener into the work, thereby to effect said displacement of work material between said locations, said first section taper being less than about 4° and greater than about ¼°, the work to include first and second panels, the combined axial extents of said conical head and said shank first section being less than the



thickness of said first panel, whereby said first section will be located entirely within the first panel,

d. the work to have a rear side face into which said countersink is sunk, whereby when said fastener is seated in said work said work rear side face will form a rearward bulge extending annularly about the rearward facing side of the head at said second location, the entirety of the bulge being immediately proximate to the radially outermost periphery of the head.

Re. 30,998

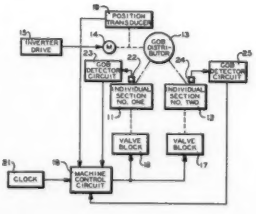
HOT GOB DETECTOR FOR CONTROLLING A GLASSWARE FORMING MACHINE

Homer D. F. Peters, Sylvania, Ohio, assignor to Owens-Illinois, Inc., Toledo, Ohio

Original No. 4,162,909, dated Jul. 31, 1979, Ser. No. 856,473, Dec. 1, 1977. Application for reissue Jul. 30, 1981, Ser. No. 288,252

Int. Cl.³ C03B *9/40*

U.S. Cl. 65—163 16 Claims



1. In a glassware forming machine including means for distributing gobs of molten glass at a predetermined rate from a source of the gobs; means for forming glassware articles in a timed, predetermined sequence of steps from the gobs received from the distributing means; means for generating timing signals; and control means responsive to the timing signals for

cyclically controlling the actuation of the forming means in cycles of the timed, predetermined sequence of steps, the improvement comprising: a gob detection means responsive to the presence of a gob proximate the forming means for generating a time reference signal to the control means and wherein the control means includes means responsive to said time reference signal for adjusting the starting time of the subsequent forming cycle of the timed, predetermined sequence of steps.

Re. 30,999

HUMIDIFER DRIVE SYSTEM

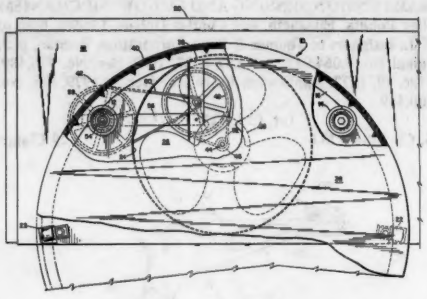
Theodore E. Tinsler, Sidney, Ohio, assignor to White-Westinghouse Corporation, Pittsburgh, Pa.

Original No. 4,112,015, dated Sep. 5, 1978, Ser. No. 790,012, Apr. 22, 1977. Continuation of Ser. No. 597,527, Jul. 21, 1975, abandoned. Application for reissue Sep. 3, 1980, Ser. No. 183,760

Int. Cl.³ B01F *3/04*

U.S. Cl. 261—92 **18 Claims**

16. In a humidifier of the type embodying a rotatable media wheel rotating on a horizontal axis so that a lower sector passes through a water reservoir and in which humidifier an airflow path is provided from the exterior of the humidifier to and through the water soaked portion of the rotating media wheel above the reservoir to a humidified air exhaust path from the humidifier, the improvement comprising: a support structure having an upright panel provided with an opening, a media wheel at one side of the panel, means including drive roller means at said one side of said panel for rotatably supporting and driving said media wheel in operative association with said opening, a driving shaft for said drive roller means having bearing support on said panel and extending through said panel, an electric motor mounted on said support structure, said motor having a rotary motor shaft each end of which projects from respective ends of the motor; a fan mounted on and fixedly secured on one end of the motor shaft disposed concentric with and adjacent said panel opening to force air



through the opening toward said media wheel, a plural belt and pulley high speed reduction drive system, with input and output pulleys located on the opposite side of said panel from said media wheel and with an input pulley directly secured on the other end of said motor shaft and an output pulley secured on said roller driving shaft.

PLANT PATENTS

GRANTED JULY 20, 1982

Illustrations for plant patents are usually in color and therefore it is not practicable to reproduce the drawing.

4,867

ROSE PLANT

Ralph S. Moore, 2519 E. Noble Ave., Visalia, Calif. 93277

Filed Dec. 1, 1980, Ser. No. 212,016
Int. Cl.[3] A01H *5/00*
U.S. Cl. Plt.—7 **1 Claim**

1. A new and distinct variety of miniature rose plant of hardy, dwarf, bushy, rounded, much branched habit, substantially as illustrated and described, characterized by buds and flowers variegated or striped, in differing degrees and patterns, with red and white, the bud being pointed in the early opening stage, resembling in form Yellow Doll (miniature — U.S. Plant Pat. No. 2,450), with the full open flower being rather flat with many (40 or more) petals ranging from long (outer petals) to quite short (inner petals); and further characterized by a plant of compact, vigorous, well rounded shape, with main stems and shoots of average thorniness, the said plant being easy to propagate from soft wood cuttings, with an abundance of small semi-glossy to matt foliage, the flowers being born singly or several to the stem in clusters.

4,868

ROSE PLANT — MEIRILOCRA VARIETY

Marie L. Meilland, Antibes, France, assignor to Conard-Pyle Company, West Grove, Pa.

Filed Sep. 26, 1980, Ser. No. 191,133
Int. Cl.[3] A01H *5/00*
U.S. Cl. Plt.—15 **1 Claim**

1. A new and distinct variety of Hybrid Tea rose plant of vegetative reproduction characterized by the fact that:

from the physical point of view the plant with bronze green adult wood is erect, forms double flowers having consistent petals which are buttercup yellow on the inside and tangerine orange on the outside with a Chinese yellow unguis on the upper surface, and bears few prickles; and

from the biological point of view the plant has vigorous vegetation, is highly susceptible to forcing, is not particularly susceptible to cryptogamic diseases, and forms flowers which last normally when cut having petals which drop off cleanly;

substantially as shown and described.

PATENTS

GRANTED JUL. 20, 1982

ERRATA

For CLASS	See PATENT NO.
464–111	4,339,931
374–162	4,339,951
411–466	4,339,983
350–106	4,340,301
148–428	4,340,425
376–342	4,340,443
524–005	4,340,510
524–504	4,340,511
523–122	4,340,512
524–013	4,340,513
524–077	4,340,514
524–274	4,340,515
523–216	4,340,516
524–059	4,340,517
524–061	4,340,518
523–414	4,340,519
523–209	4,340,520
524–002	4,340,521
524–766	4,340,522
524–504	4,340,523
524–297	4,340,524
524–292	4,340,526
524–432	4,340,527
524–513	4,340,528
524–105	4,340,529
524–515	4,340,530
524–556	4,340,531
524–854	4,340,532
524–099	4,340,533
524–099	4,340,534
548–440	4,340,540
548–503	4,340,541
549–368	4,340,542
549–414	4,340,543
549–356	4,340,544
549–241	4,340,545
424–049	4,340,628
071–123	4,340,765

PATENTS

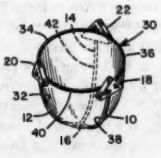
GRANTED JULY 20, 1982

GENERAL AND MECHANICAL

4,339,830
BASEBALL GLOVE
Kyozo Sasaki, Ashiya, Japan, assignor to Sasaki Kabushiki Kaisha, Osaka, Japan
Filed Sep. 11, 1979, Ser. No. 74,810
Claims priority, application Japan, Sep. 18, 1978, 53-128917
Int. Cl.³ A41D *13/10*
U.S. Cl. 2—19 **6 Claims**

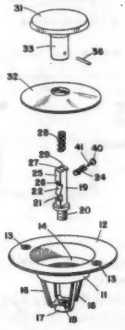
1. A baseball glove or mitt comprising:
a front portion of engaging a ball and a rear portion for receiving the hand of a wearer;
said front portion including a palm portion comprising a single thickness sheet of leather only, which substantially corresponds to the palm of the hand of the wearer and which is used for catching a ball; and
said palm portion having in the outer surface thereof means for increasing the flexibility of said palm portion and for dampening rotation of a ball when caught thereby, said means comprising a plurality of dimple-like recesses hot died into said outer surface.

4,339,831
DYNAMIC ANNULUS HEART VALVE AND RECONSTRUCTION RING
Keith M. Johnson, Coon Rapids, Minn., assignor to Medtronic, Inc., Minneapolis, Minn.
Filed Mar. 27, 1981, Ser. No. 248,624
Int. Cl.³ A61F *1/22*
U.S. Cl. 3—1.5 **19 Claims**



10. A prosthetic heart valve for permanent implantation in the heart valve annulus comprising:
a. expansible valve frame means further comprising a plurality of flexible, curved valve struts and means for joining one end of each valve strut together to form a curved, open framework, the other free ends of said valve struts extending in a common direction with respect to the other and spaced from one another;
b. a like plurality of valve leaflets made of thin, flexible, impermeable sheet material, each leaflet formed to fit between adjacent ones of said valve struts and having a free edge extending in an arc between the respective free ends of said valve struts;
c. means for attaching said leaflets from the joined end to the free end of adjacent ones of said valve struts to form a fluid tight covering over said framework; and
d. support means for attaching the free ends of said valve struts to the tissue annulus, whereby said leaflets may bellow out and contact the tissue annulus during closure of said valve and may collapse inwardly against one another during opening of said valve.

4,339,832
FLUSH MOUNTED POP UP DRAIN FITTING
Casper Cuschera, 800 Durham Rd., Fremont, Calif. 94538
Filed Apr. 25, 1980, Ser. No. 143,791
Int. Cl.³ A47K *1/14;* **E03C** *1/26*
U.S. Cl. 4—287 **6 Claims**



1. In a drain valve including a drain body having a flow channel therethrough and a post extending axially through said flow channel, and a drain sealing cover provided with a tubular portion having a central passage receiving said post for slidable translation thereabout and radial clearance therefrom, said drain sealing cover being translatable from a first upper position to a second lower position, detent means in said post for selectively securing said post and said tubular portion with said drain sealing cover in said second position, the improvement comprising an annular lip extending radially inwardly in said flow channel and disposed at the lower end of said drain body, said drain sealing cover impinging on said lip when in said second position to effect a seal of said flow channel, the uppermost extent of said drain sealing cover extending substantially flush with the upper end of said drain body when in said second position.

4,339,833
RECIPROCATING HYDRO-MASSAGE APPARATUS
Gerald D. Mandell, 5427 N. Bryn Mawr, Ventura, Calif. 93003
Filed Dec. 31, 1980, Ser. No. 221,838
Int. Cl.³ A47C *19/12*
U.S. Cl. 4—542 **9 Claims**

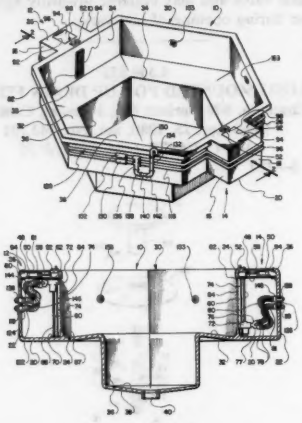
1. A reciprocating hydro-massaging apparatus comprising:
a housing having at least one wall with an elongated opening provided therein, said wall having a front face and a rear face;
a nozzle reciprocably mounted in said housing adjacent said rear face of said wall in fluid communication with said elongated opening;
means coupled to said nozzle for reciprocating it with respect to said elongated opening; and

means connected to said nozzle for supplying a massaging fluid to said elongated opening, whereby a user of said apparatus may position a body part adjacent said elongated opening and said front face of said wall for massaging said body part.

8. In combination with a hot tub including an encompassing sidewall having an inner surface and an outer surface and an incoming water supply, the improvement which comprises:

A. An elongated slot in said sidewall; and

B. A reciprocating massaging apparatus affixed to the outer surface of said encompassing sidewall in fluid communication with said elongated slot, said apparatus comprising:



1. a housing having an open front, a rear wall, an open top and a bottom wall;
2. means affixing said housing to the outer surface of said encompassing sidewall with the open front of said housing communicating with said elongated slot;
3. a partition mounted in said housing adjacent said open top;
4. a hydro-jet-type nozzle;
5. means reciprocably mounting said nozzle in said housing in fluid communication with said elongated slot; and
6. a flexible conduit connecting said nozzle to said incoming water supply.

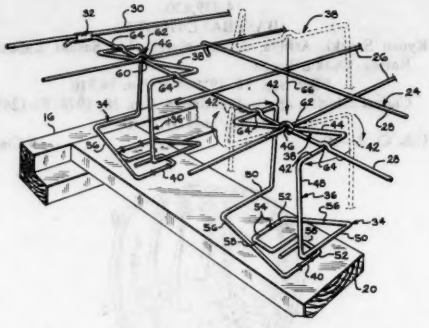
4,339,834

BOX SPRING ASSEMBLY WITH INTERLOCKED FORMED WIRE COMPONENTS AND METHOD OF ASSEMBLING SAME

Ned W. Mizelle, Lexington, Ky., assignor to Hoover Universal, Inc., Ann Arbor, Mich.

Filed Mar. 21, 1980, Ser. No. 131,935
Int. Cl.³ A47C *23/02*; F16F *3/00*
U.S. Cl. 5—255 **11 Claims**

1. In a box spring assembly which includes a generally horizontal rectangular frame and a generally horizontal spring wire mattress support deck disposed a predetermined distance above said frame, said deck including a plurality of substantially straight wires arranged criss-cross fashion, some of said wires extending lengthwise of said frame and others of said wires extending crosswise of said frame; a plurality of deck support springs arranged in a regular pattern between said deck and said frame so as to yieldably support said deck on said frame, each of said springs including a vertically yieldable portion secured at the lower end to said frame and terminating at the upper end in a deck-attaching portion, each said deck-attaching portion including a pair of generally parallel spaced wire sections and a connecting wire section integral with and extending diagonally between said spaced wire sections, each said attaching portion being located so that a mid portion of the connecting wire section therein is at the juncture of a lengthwise wire with a crosswise wire in said deck and the parallel wire sections extend crosswise of one of said crosswise



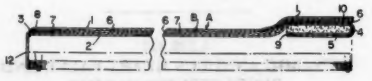
or lengthwise wires on opposite sides of said juncture, said parallel wire sections and said connecting wire section being located on opposite top and bottom sides of the deck wires at said juncture so as to clamp said spring to said deck.

4,339,835

SLEEPING SACK

Fern Jaffe, 6 W. 77th St., New York, N.Y. 10024, and Rose Blacker, 429 71st St., North Bergen, N.J. 07047

Filed Mar. 19, 1980, Ser. No. 131,638
Int. Cl.³ A47G *9/08*
U.S. Cl. 5—413 **11 Claims**



1. A sleeping sack arrangement for use on top of a sleeping surface, and having a foot end, a head end and opposite sides extending from said foot end to said head end, comprising:

an outer sack (A) having a lower layer (2) and an upper layer (1) secured to said lower layer at the foot end of the sleeping sack and at least along a portion of the sides of said sleeping sack, said outer sack (A) further comprising operable pocket means (4) for removably retaining a pillow member (5) in said pocket means at the head end of the sleeping sack, the upper and lower layers of the outer sack being always unconnected from each other at the sides thereof at the head end portion of the outer sack to provide an opening between the upper and lower layers of the outer sack at the head end portion of the outer sack;

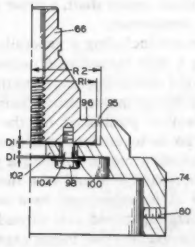
an inner sack (B) removably received between the inner and outer layers of said outer sack (A), and comprising an upper layer (6) and a lower layer (7), said upper and lower layers of said inner sack being secured together along the foot end of said inner sack and at least along a portion of the sides of said inner sack, said inner sack further comprising a further operable pocket means (7') at the head end portion of said inner sack for engaging and substantially enclosing and removably covering the pillow retaining means (4) of said outer sack to prevent said pillow

retaining means (4) of said outer sack from being uncovered by said head end portion of said inner sack during normal use, while permitting easy intended removal of said further pocket means from said pillow retaining means (4) of said outer sack, the upper and lower layers (6, 7) of said inner sack being always unconnected from each other at the sides thereof at the head end portion of said inner sack to permit entry of user into said inner sack between the upper and lower layers of said inner sack, the inner sack being removably received in the outer sack through at least said opening at the head end portion of the outer sack;

means (24, 25; 26, 27) for releasably securing said inner and outer sacks together at least in the vicinity of the foot end of said sleeping sack;

and at least one permanently open access opening in said outer sack, in the vecinity of the foot end thereof, through which a hand is passable for facilitating insertion and arrangement of said inner sack (B) within said outer sack (A).

4,339,836
LEAD SCREW THREADING ASSEMBLY
Kenneth D. Kloster, 6649 Millridge, Maumee, Ohio 43537
Continuation-in-part of Ser. No. 86,787, Oct. 22, 1979, abandoned. This application May 26, 1981, Ser. No. 266,885
Int. Cl.³ B23G *1/26, 5/04*
U.S. Cl. 10—123 P **1 Claim**



1. An apparatus for forming threads on an end wall of a hollow cylindrical shroud of a shock absorber assembly comprising:

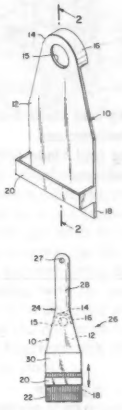
guide means for insertion into the interior of the cylindrical shroud, said guide means including a collet having a first plurality of outwardly adjustable arms terminating at one end of said collet and having a second plurality of outwardly adjustable arms terminating at the opposite end of said collet, each of said first and second arms provided with an arcuate engaging surface generally conforming to the inner wall of the shroud, said guide means including means for moving said first and second arms outwardly whereby the arcuate engaging surfaces of said first and second arms are moved into engagement with the inner wall of the shroud to maintain said guide means in coaxial alignment with the interior of the shroud, said guide means further including an arbor means extending axially from one end of said collet, said arbor means having an externally threaded section of a predetermined pitch in coaxial alignment with the axis of said guide means;

driver means rotatably mounted on said guide means for longitudinal movement along the axis of said guide means, said driver means provided with an internally threaed section for threaded engagement with the externally threaded section of said arbor means;

thread forming means for forming threads having a pitch corresponding to the pitch of the threaded sections of the arbor means of said guide means and said drive means; and

means for mounting said thread forming means on said driver means to permit limited radial movement of said thread forming means relative to the axis of said guide means whereby the axis of said thread forming means can vary relative to the axis of said guide means.

4,339,837
PAINT BRUSH ACCESSORY
Christiaan Reeberg, 111-67 145th St., Jamaico, N.Y. 11435
Filed Oct. 27, 1980, Ser. No. 200,963
Int. Cl.³ A46B *9/10, 17/04*
U.S. Cl. 15—169 **2 Claims**



1. A one piece accessory for paint brushes having bristles connected by a single ferrule to a handle in line therewith; comprising

(a) a single integral rectangular box-like girdle connecting said accessory to said paint brush, said girdle slidingly embracing said bristles;

an integral flat plate-like straight edger shield extending upwardly and downwardly from one sidewall of said girdle, alongside of and parallel to the brush ferrule and handle above the girdle, as well as to the bristles below; and

(A) a lateral integral arcuate flange extending at right angles to the upper end of said shield, which flange serves as a finger piece for reinforcing and for manually adjusting said girdle alongside of and longitudinally with respect to the free end of said bristles to confine and control the bristles before as well as during painting; the lower edge of said flat plate-like shield which extends below said girdle being straight and extending downwardly below said girdle to a length such that said girdle encompasses a portion of the length of said bristles when said lower edge of said shield is in cooperative engagement with the free ends of said bristles during painting, said girdle serving to control the effective length of said bristles as well as to strip or squeeze excess paint therefrom, and provides a sales display kit in which the brush bristles are protected and held in place by the girdle.

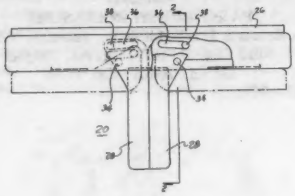
4,339,838
SQUEEGEE
Gerald P. Pekarek, 1112 67th St. NW., Bradenton, Fla. 33529
Filed Nov. 19, 1980, Ser. No. 208,310
Int. Cl.³ A47L *1/06*
U.S. Cl. 15—245 **15 Claims**

1. A squeegee, comprising:

(a) an elongated blade housing having an elongated retangular opening through its upper surface;

(b) an elongated blade holder moveably positioned in the interior of said blade housing;

(c) an elongated blade held by said blade holder for vertical movement through said opening in said blade housing;
(d) means for vertically moving said blade holder and said blade;



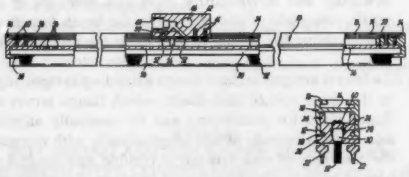
(e) means for securing said blade holder and said blade in their uppermost positions; and
(f) means for securing said blade holder and said blade in their lowermost positions.

4,339,839

WINDSCREEN WIPERS

Robert E. Knights, Derby, England, assignor to Knights, Brooks and Partners Limited, Spondon, England

Filed Mar. 14, 1980, Ser. No. 130,297
Claims priority, application United Kingdom, Mar. 23, 1979, 7910270
Int. Cl.³ B60S 1/46, 1/38
U.S. Cl. 15—250.04 **16 Claims**



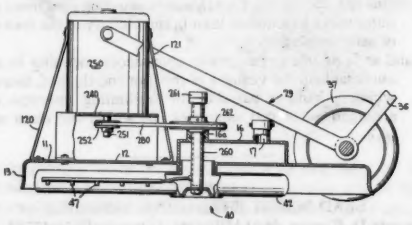
1. A windscreen wiper comprising:
an elongate blade carrier,
a flexible blade arrangement mounted on the carrier, the blade arrangement including a pair of longitudinally extending parallel spaced resilient lip members adapted to engage a windscreen surface so as to bound a hollow space which is closed in use by the windscreen,
at least one conduit for cleaning fluid communicating with said space, and
a longitudinally extending resilient screen scrubbing arrangement mounted in the hollow space between but spaced from the lip members, the scrubbing arrangement when in use contacting the windscreen surface,
the blade carrier, the blade arrangement, and the scrubbing arrangement each having a constant cross-section along its entire length, a recess in one of the blade carrier and blade arrangement for accommodating the scrubbing arrangement,
the blade arrangement and the scrubbing arrangement each being uniformly longitudinally flexible at all points along its length.

4,339,840

ROTARY FLOORING SURFACE TREATING DEVICE

Clifford L. Monson, #714, 411 Hobron La., Honolulu, Hi. 96815

Continuation-in-part of Ser. No. 89,486, Oct. 30, 1979, Pat. No. 4,264,999, and Ser. No. 166,396, Jul. 7, 1980. This application Apr. 6, 1981, Ser. No. 251,118
The portion of the term of this patent subsequent to Jun. 8, 1999, has been disclaimed.
Int. Cl.³ A47L 11/34
U.S. Cl. 15—321 **10 Claims**



1. A rotary flooring surface treating device which is movable on and over the surface to be treated, said device comprising a lower carriage unit and an upper handle unit,
said lower carriage unit including a shroud means, a wand means, a hollow center shaft, a drive means and an interconnection mechanism,
said shroud means including a generally disc-shaped cover part having a skirt extending downwardly from the periphery thereof and an opening therethrough at the center thereof, said shroud means also including means forming a vacuum chamber positioned on the upperside of said cover part so as to enclose said opening, said vacuum chamber including means forming a port for sealing attachment thereto of one end of a flexible hose which is connectable at its other end to a remotely positioned vacuum generating means, said shroud means also including an annular vacuum seal means extending downwardly from the underside thereof so as to enclose said opening, said seal means being capable of forming a substantially vacuum-tight seal with an upper part of a hollow cylindrical portion of a wand means positioned therein, yet allow for free rotation of said upper part therein;
said wand means including a hollow cylindrical portion whose upper part is generally sealingly yet rotationally mounted within said annular vacuum seal means and multiple radially-extending arms, said arms each including a radially-extending vacuum duct means with a bottom vacuum slot, each of said vacuum duct means being operatively connected to the lower part of said hollow cylindrical portion, and a discharge pipe with spray nozzles attached to the side of each vacuum duct means;
said hollow center shaft extending from below said shroud means upwardly through said vacuum chamber and above said shroud means, the lowermost end of the hollow center shaft mounting said wand so as to rotate same and the uppermost end of said hollow center shaft connecting with a removable, rotatable liquid-tight coupling means,
said drive means being mounted on said shroud means such that the downwardly extending drive shaft thereof will be spaced from said hollow center shaft,
said interconnecting mechanism connecting the drive shaft of said drive means to the hollow center shaft such that rotation of the former will cause rotation of the latter,
multiple hose means sealingly connected to separately extend between one opening in the lower end of said hollow center shaft and a separate discharge pipe, each of said hose means acting to deliver a portion of the treating solution which has passed downwardly through the hol-

low center shaft from the liquid-tight coupling means to a separate discharge pipe;

said lower carriage unit also including wheel means for movably mounting said shroud means and said wand means above the flooring surface to be treated and a bracket means for connecting said lower carriage unit to said upper handle unit;

said upper handle unit including an extension means and a handle means,

said extension means including at least one elongated extension member, one end of which is adjustably connected to said bracket means,

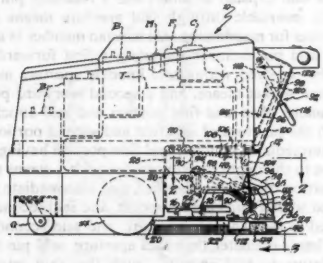
said handle means comprising an operator gripper means connected to said extension means adjacent the second end thereof.

4,339,841

SQUEEGEE SUPPORT ASSEMBLY FOR AUTOMATIC FLOOR CLEANING MACHINES

Steven J. A. Waldhauser, and Richard D. Masbruch, both of Lewiston, N.Y., assignors to Wetrok, Inc., Niagara Falls, N.Y.

Filed Nov. 12, 1980, Ser. No. 206,276
Int. Cl.³ A47L *7/00, 11/30*
U.S. Cl. 15—359 **12 Claims**



1. In an automatic floor cleaning machine having a housing, drive wheels supported by the housing for rotation about a horizontal axis, a pair of spaced holders for floor treating devices supported by the housing for rotation about a vertical axis and a squeegee blade carrying assembly mounted to the housing for at least lateral movement about a vertical axis; the improvement of means for supporting said squeegee assembly, said means including:

an arm support member pivotally mounted to said housing for pivotal movement about a vertical axis;

a compound arm assembly including an upper arm having one end pivotally connected to said arm support member for rotation about a horizontal axis, a lower arm having one end pivotally connected to said arm support member below said upper arm for rotation about a horizontal axis;

means for pivotally connecting the other ends of said upper and lower arms to said squeegee blade carrying assembly centrally of the extremities thereof whereby said arms and said assembly are constrained to vertical movement with respect to said arm support member; and

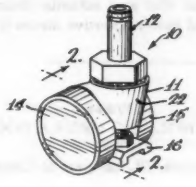
means supported by said housing for vertically lifting said assembly from its operative position whereat the blades thereof are in contacting relation to a floor surface to its inoperative position whereat such blades are vertically lifted.

4,339,842

COMBINATION CASTER AND FIXED SUPPORT

Frank J. Fontana, Stratford, and Francis J. Forte, Huntington, both of Conn., assignors to Stewart-Warner Corporation, Chicago, Ill.

Filed Oct. 6, 1980, Ser. No. 194,377
Int. Cl.³ B60B *33/06*
U.S. Cl. 16—32 **17 Claims**



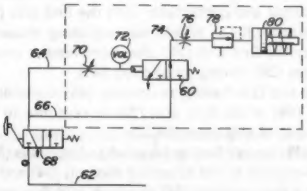
1. A combined dual wheel caster and support pad assembly comprising; horn means, a wheel supported on each side of the horn means for rotation, a pad support mounted for vertical adjusting movement in the horn means and having a lower thrust surface, a pad mounted on the pad support for pivotal movement, said pad support being movable downwardly to engage the thrust surface with the pad to lower the pad into engagement with the floor and raise the wheels from the floor, and means for locking the pad in an upward tilting position so that the pad does not interfere with obstacles when the wheels operatively engage the floor.

4,339,843

DOOR CLOSER WITH ASSIST OR DOOR OPERATING FEATURES

L. Nelson Burnett, Jr., Pottstown, Pa., assignor to Reading-Dorma Closer Corporation, Reamstown, Pa.

Continuation-in-part of Ser. No. 888,217, Mar. 20, 1978, Pat. No. 4,222,147. This application May 27, 1980, Ser. No. 153,741
Int. Cl.³ E05F *3/00*
U.S. Cl. 16—62 **10 Claims**



1. Hydraulic door closer apparatus comprising a housing having a cylinder therein, a piston disposed in said cylinder, force transmitting means operatively coupled to said piston for transmitting forces to and from said piston to control movement of a door, biasing means in said cylinder in force-transmitting engagement with said piston for biasing said piston toward a rest position, actuator means operatively coupled to said piston for selectively applying to said piston force in opposition to said biasing means, said actuator means being secured to said housing and including a force-transmitting member in force-transmitting engagement with said piston and operable in a direction parallel to the axis of said cylinder and said piston to oppose said biasing means, said actuator means being a fluid actuator of the pneumatic type, and control means operatively coupled to said actuator means for selectively operating said actuator means, said control means comprising a source of air pressure, conduit means coupled to said source and said actuator means, a fluid relay disposed in said conduit means, and manually operable means operatively associated

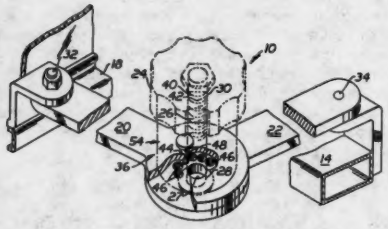
with said conduit means for selectively operating said fluid relay and placing said actuator means in fluid communication with said source, said manually operable means comprising time-responsive means for interrupting fluid communication between said source and said actuator when said time-responsive means times out, and valve means operatively coupled to said fluid relay, said time-responsive means and said source, so that actuation of said valve means causes said time-responsive means to operate, said time-responsive valve being so constructed and arranged that said actuator means is rendered inoperative when said time-responsive means is timed out.

4,339,844

ASSEMBLY FOR HOLDING OPEN A DOOR OR THE LIKE

Dale R. Shatters, Aurora, Ill., assignor to Caterpillar Tractor Co., Peoria, Ill.

Filed Jun. 30, 1978, Ser. No. 921,017
Int. Cl.³ E05F *5/02, 7/06;* F16C *11/06*
U.S. Cl. 16—82 **9 Claims**



9. In an arm assembly (10) having first and second arms (20,22), first means (26) for pivotally connecting said first and second arms (20,22) and an adjusting element (24) connected to said first means (26), said first arm (20) being positioned between the second arm (22) and the adjusting element (24), said adjusting element (24) being controllably movable between a first position (36) at which said adjusting element (24) is immediately adjacent and contactable with the first arm (20) and a second position (38) at which said adjusting element (24) is spaced from the first arm (20), the improvement comprising:

said first arm (20) having an opening (44);

said second arm (22) having an opening (46) alignable with the opening (44) of the first arm (20) in response to pivotally moving one of said arms (20,22);

a member (48) having first and second end portions (50,52) and being connected to the adjusting element (24) and movable between a first position (54) at which said first end portion (50) is positioned in the openings (44,46) of the first and second arms (20,22) and a second position (56) at which said first end portion (50) is spaced from said second arm opening (46) in response to moving the adjusting element (24);

said adjusting element (24) having an opening (64); and

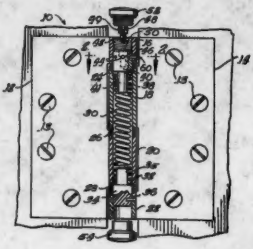
second means (58) for biasing said member (48) in a direction (60) toward the second arm (22), said second means (58) including a spring (66) and first and second retaining members (68,70), said spring (66) having a preselected spring constant and being positioned in said opening (64) of the adjusting element (24), said first retaining member (68) having an opening (72) alignable with the opening (44) of the first arm (20) and being rotatably connected to said adjusting element (24) and positioned in the opening (64) of said adjusting element (24), said second retaining member (70) being positioned between the spring (66) and the first retaining member (68) and connected to the second end portion (52) of the member (48).

4,339,845

SPRING HINGE

Robert L. Newlon, Sterling, and Delmar McNinch, Rock Falls, both of Ill., assignors to Lawrence Brothers, Inc., Sterling, Ill.

Filed May 9, 1978, Ser. No. 904,276
Int. Cl.³ E05F *1/12*
U.S. Cl. 16—300 **11 Claims**



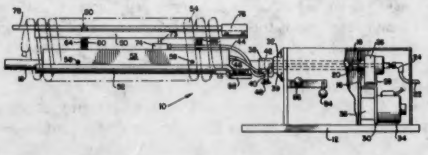
1. A spring hinge comprising: first and second adjacent hinge leaves, each having at least one hinge knuckle, said hinge knuckles being axially aligned and defining a knuckle bore, a spring member mounted within said knuckle bore and having first and second ends, said first end engaged for rotation in unison with a first one of said knuckles, the second end engaged with a capstan member rotatably mounted within the other of said hinge knuckles, and means for selectively achieving and maintaining a spring force, said means including aperture means formed in said other hinge knuckle, socket means formed in said capstan member, and a retaining pin member selectively insertable through said aperture means into said socket means for maintaining said capstan member in a selected position, said pin member including a first forward portion sized to be received within said knuckle aperture means and said capstan socket means, and a second rearward portion of lesser diameter than said first portion and said knuckle aperture, with the juncture of said first and second portions defining an intermediate shoulder, said first portion having a length in relation to the depth of said capstan socket means such that upon insertion of said pin member, said intermediate shoulder is received within said capstan socket, and said second portion is disposed in said knuckle aperture, and said second portion being of lesser diameter than said aperture, said pin is free to move relative to said aperture, such that said intermediate shoulder is disposed for movement out of registry with said aperture means in said hinge knuckle in response to the force exerted on said capstan by said spring, said movement of said pin member bringing said intermediate shoulder in position to engage the inner end of said aperture means, thus precluding movement of said pin member out of said socket due to vibrational forces or the like.

4,339,846

SAUSAGE COILING MACHINE

Anthony W. Zamiara, Spencerport, N.Y., assignor to Maplecrest Foods, Inc., Rochester, N.Y.

Filed Jun. 20, 1980, Ser. No. 161,403
Int. Cl.³ A22C *15/00*
U.S. Cl. 17—1 R **8 Claims**



1. A sausage coiling machine comprising:

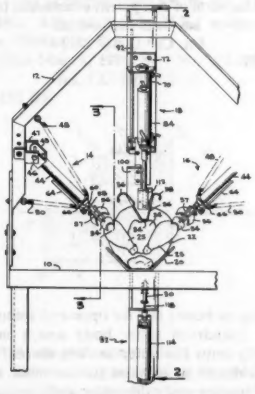
(a) an elongated drive shaft,
(b) drive means for rotating said shaft,
(c) a pair of spaced semi-arcuate arms,
(d) means on one of said arms adapted to receive a smoke stick and means on the other arm adapted to receive an end of a chain of sausage,
(e) at least one of said arms being secured about said drive shaft so that said arms and shaft rotate together,
(f) connecting means extending between said arms for securing said arms together,
(g) said connecting means including at least one rod depending from one of said arms and at least one receptacle located on the other one of said arms in alignment therewith, said rod being moveable within said receptacle to allow relative radial movement between said arms,
(h) piston means secured between said pair of arms, and
(i) pneumatic means connected to said piston means for pressurizing said piston means to move said rod within said receptacle, thereby adjusting the distance between said arms so that the radial distance between said arms is altered and the diameter of the rope of sausage to be coiled thereabout is adjusted.

4,339,847

DRESSED FOWL LEG HOLD-DOWN MEANS

Paul L. Niccolls, 3631 N. Dawn Ct., Springfield, Mo. 65803

Filed Sep. 15, 1980, Ser. No. 187,176
Int. Cl.³ A22C *21/00*
U.S. Cl. 17—1 S **18 Claims**



1. Leg holding and positioning apparatus for positioning in a dressed fowl comprising the combination of a wirelike bail having a central portion with first and second leg hooks extending outwardly therefrom and dimensioned to be hooked over the leg ends of a fowl with the central portion extending into the body cavity of the fowl and bail anchor means dimensioned to extend through the back of the fowl to the body cavity including connector means connectable to the central portion of the wirelike bail for holding the wirelike bail in position to restrain outward movement of the wirelike bail and the legs of the fowl legs.

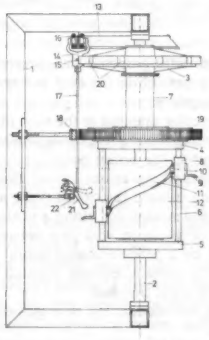
11. Apparatus for applying leg restaining tie-down means to a fowl comprising:
(a) fowl support means for supporting a dressed fowl on its back;
(b) leg positioning means positioned above the fowl support means for moving the legs of a fowl positioned on the support means inwardly to a tucked position adjacent the body cavity;
(c) bail positioning means for positioning a wirelike bail having a central portion and first and second leg hooks in a holding position in which the first and second leg hooks engage the legs of the fowl and the central portion is in the body cavity of the fowl; and
(d) anchor inserting means for moving an elongated anchor member up through the back of the fowl to connectingly engage holding means on one end of the elongated anchor member with the central portion of the wirelike bail to preclude subsequent outward movement of the wirelike bail.

4,339,848

APPARATUS FOR REMOVING THE CUT OFF FEET OF A FOWL FROM AN OVERHEAD CONVEYOR SHACKLE

Pieter Meyn, P.O. Box 16, 1510 AA Oostzaan, Netherlands

Filed Oct. 20, 1980, Ser. No. 199,079
Int. Cl.³ A22C *21/00*
U.S. Cl. 17—11 **5 Claims**



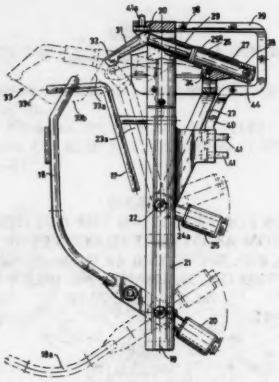
1. An apparatus for removing the cut-off feet of a fowl from a shackle of a continuously moving overhead conveyor, comprising
a frame;
a support, movably supported by said frame;
a clamping means associated with said support, for gripping and holding said shackle against movement relative to said conveyor, during part of the path thereof;
first moving means for moving said support and said clamping means along in synchronisation with said conveyor, during said part of said path;
second moving means for additionally moving said support up and down relative to said conveyor and said clamping means;
an unloading member carried by said support and adapted to wipe the face of said shackle for lifting said feet out of said shackle as said support move upwards relative to said conveyor; and
means for controlling said second moving means in such manner, that said support is in its lowermost position relative to said conveyor as said shackle is gripped by said clamping means, and has reached its uppermost position before said shackle is released again by said clamping means.

4,339,849

METHOD OF CUTTING A SLAUGHTERED BIRD FROM VENT TO BREAST

Martinus P. G. van Mil, Boxmeer, Netherlands, assignor to Stork PMT B.V., Boxmeer, Netherlands

Division of Ser. No. 10,233, Feb. 8, 1979, Pat. No. 4,266,322.
This application Dec. 8, 1980, Ser. No. 214,234
Claims priority, application Netherlands, Feb. 15, 1978, 7801712
Int. Cl.[3] A22C *21/00*
U.S. Cl. 17—52 8 Claims



1. A method of cutting open a slaughtered bird between its vent and breast point while the bird is moving along a conveyor which comprises

A. cutting a circular opening at the vent of the bird as a first cut, said opening having its axis aligned with a straight line from the vent to the breast point,

B. starting a second cut in the bird at the circular opening and extending toward the breast point along said axis,

C. continuing the second cut along a portion of the cut that is laterally offset from said line between the vent and breast point by a predetermined lateral distance so as to avoid cutting certain entrails located within the bird below said straight line and

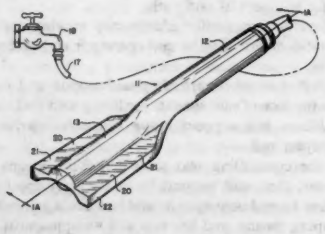
D. completing the second cut in a movement back to said breast point.

4,339,850

MULTI-PURPOSE WATER OUTLET AND ACCESSORIES

Wilbur E. Altman, 1509 Richland Dr., Charlotte, N.C. 28205, and William C. McQuay, 214 W. LaPorte Dr., Charlotte, N.C. 28216

Division of Ser. No. 131,233, Mar. 17, 1980, Pat. No. 4,297,765.
This application Jun. 29, 1981, Ser. No. 278,050
Int. Cl.[3] A22C *25/02*
U.S. Cl. 17—69 5 Claims



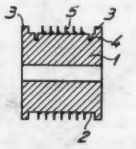
1. A water handle for association with a desired cleaning tool and for directing water against a surface to be cleaned, said water handle comprising a handle portion and an outlet portion having an internal passage way extending axially through the handle and outlet portions, means at the free end of the handle portion for establishing communication between the longitudinal passageway and a source of water, said outlet portion including a tubular housing about the internal passageway, oppositely directed flanges extending laterally and forwardly from the tubular housing of the outlet portion, each flange including a straight horizontally extending top wall, a vertically extending sidewall and a bottom wall extending inwardly from its juncture with the side wall in parallel relation to the horizontal top wall and then upwardly and inwardly in an arc to its juncture with the tubular housing of the outlet portion to define a channel along the tubular housing of the outlet portion, the tubular housing of outlet portion having at least one outlet port communicating with the longitudinal passageway and with the outer surface of the outlet portion, a cleaning tool, and guide means on the cleaning tool compatible with the flanges on the outlet portion whereby the cleaning tool may be operatively assembled on the outlet portion for a desired cleaning function.

4,339,851

BEATER ROLL FOR OPEN-END SPINNING MACHINES

Karl-Heinz Schmolke, Neuweiler, Fed. Rep. of Germany, assignor to Hollingsworth GmbH, Neubulach, Fed. Rep. of Germany

Filed Oct. 15, 1979, Ser. No. 84,789
The portion of the term of this patent subsequent to Jan. 4, 1997, has been disclaimed.
Int. Cl.[3] D01G *15/14*
U.S. Cl. 19—97 7 Claims



1. An opening or beater roll for open-end spinning machines comprising a cylindrical roller body and a sawtooth wire wound helically onto the outer surface thereof which has a base region widened in relation to the teeth and which is wound under tension onto the outer surface and fixed at its ends to the roller body, base regions of adjacent turns of the sawtooth wire being separated by a gap from one another, the ratio of the height to the width of the base regions being $\leqq 1$; said sawtooth wire being wound on a portion of the outer surface of the cylindrical roller body; said portion being free of grooves so that said wire lies directly on the outer grooveless surface of said cylindrical roller body.

4,339,852

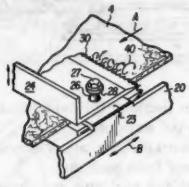
CLEARER DEVICE FOR DRAFT ROLLS

Yoshio Murao, No. HA-173, Nukaotomaru-cho, Kanazawa-shi, Japan

Filed Jun. 3, 1980, Ser. No. 155,966
Claims priority, application Japan, Jun. 13, 1979, 54-75096
Int. Cl.[3] D01H *5/64*
U.S. Cl. 19—264 4 Claims

1. An apron clearer device for draft rolls, said apron travelling in contact with lower surface portions of said draft rolls; said clearer device comprising: side frames each having one end pivoted on an intermittently driven shaft to allow the side frames to rotate; an apron driving roll disposed between said side frames for transmitting unidirectional rotation from said

intermittently driven shaft via a unidirectional clutch; eccentrically supported apron guide rolls secured on the other end of said side frames; an endless apron stretching between said driving roll and guide rolls; at least two plates secured in a position on said side frames on the inner surface side of said endless apron to force said apron into contact with said draft rolls; stripping combs traversing the lower side of said endless



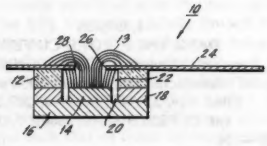
apron in the direction of travel of said apron while sandwiching said apron therebetween, wherein said combs comprise an outer comb for clearing the outer surface side of said apron and an inner comb for clearing the inner surface side of said apron while being in contact with the lower side of said apron under pressure, said combs being driven with said intermittently driven shaft via a swing arm and a rod; and an inclinable stand on the front lower side of said side frames.

4,339,853

MAGNETIC DECOUPLER

Henry Lipschitz, Atlantic Beach, N.Y., assignor to Permag Corporation, Hicksville, N.Y.

Filed Mar. 4, 1980, Ser. No. 127,188
Int. Cl.³ H01F *3/12*
U.S. Cl. 24—155 BR **9 Claims**



1. A composite magnet, comprising:

an annular, ceramic magnet having opposed substantially flat faces and a bore extending between said faces along a first axis, a first of said flat faces defining a first pole of said ceramic magnet having a first polarity, a second of said flat faces defining a second pole of said ceramic magnet having a second, opposite, polarity;

a cylindrical rare earth magnet having opposite substantially flat faces and a central axis coaxial with said first axis, a first of said flat faces of said rare earth magnet defining a first pole of said rare earth magnet having said first polarity, the second of said flat faces of said rare earth magnet defining a second pole of said rare earth magnet having said second polarity; and

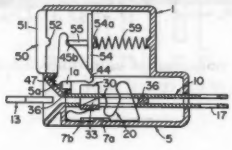
means for orienting said magnets relative to one another such that said ceramic magnet serves to both focus and add to the flux lines of said rare earth magnet and such that said flux lines extend between said first flat face of said rare earth magnet and said second flat face of said ceramic magnet along a path which passes through said bore of said ceramic magnet in a direction substantially parallel to said first axis whereby a strong magnetic field is defined in said bore.

4,339,854

BUCKLE ASSEMBLY FOR SEAT BELT

Haruyuki Ikesue, Fujisawa, Japan, assignor to NSK-Warner K.K., Tokyo, Japan

Filed Feb. 4, 1980, Ser. No. 118,208
Claims priority, application Japan, Feb. 5, 1979, 54-12809[U]; Feb. 5, 1979, 54-12810[U]
Int. Cl.³ A44B *11/25*
U.S. Cl. 24—230 AL **8 Claims**



1. A buckle assembly for seat belt including:

cover means comprising a first cover member having a push button operation opening therein and first supporting means adjacent to the push button operation opening, and a second cover member having a tongue insertion opening therein and second supporting means adjacent the tongue insertion opening, said cover means being disposed to form a hollow chamber in communication with said two openings;

a latch member movable in a direction normal to a tongue inserting direction between tongue latching position and tongue unlatching position and being normally biased toward said tongue latching position;

a base member mounted in said second cover member, said base member extending in the tongue inserting direction to form a tongue guide passage in communication with said tongue insertion opening and movably supporting said latch member; and

latch member operating means disposed within said cover means and being always biased to take a condition in which said operating means has no effect on said latch member, said latch member operating means including a push button mounted in said first cover member for sliding in a direction parallel with the tongue inserting direction, and a lever member disposed rotatably about an axis extending normally to both of the tongue inserting direction and latch member sliding direction, the lever member being supported between said first and second supporting means, and said lever member having a first engaging portion for engagement with said push button and a second engaging portion for engagement with said latch member, whereby a sliding motion of said push button against said bias causing, through a rotational movement of said lever member, a movement of said latch member from the tongue latching position to tongue unlatching position.

4,339,855

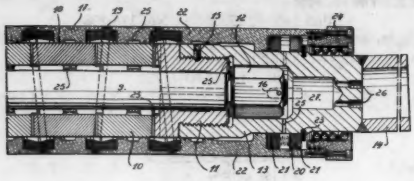
WEB-SPREADING ROLLER

Armand Demiere, Epalinges, Switzerland, assignor to Arcomac S.A., Lausanne, Switzerland

Filed Apr. 19, 1977, Ser. No. 788,882
Claims priority, application Switzerland, Apr. 30, 1976, 5435/76
Int. Cl.³ D06C *3/06*
U.S. Cl. 26—103 **10 Claims**

1. A web-spreading roller comprising a stationary central shaft and a plurality of cylindrical sleeves mounted for rotation thereon, said central shaft comprising a prestressed rod and a plurality of stationary cylindrical rings, the end faces of each of said rings being disposed in planes forming an acute angle with each other, the cylindrical rings being disposed on the pre-

stressed rod with their long sides in alignment, said central shaft comprising further means tensioning said rod and com-



pressing said rings against each other thereby imparting an arcuate shape to the central shaft.

4,339,856

APPARATUS FOR CONTINUOUS UNTWISTING AND CRIMPING OF A CLOTH

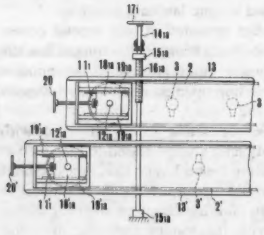
Yoshikazu Sando; Hiroshi Ishidoshiro, and Matsuo Minakata, all of Wakayama, Japan, assignors to Sando Iron Works Co., Ltd., Wakayama, Japan

Filed May 15, 1980, Ser. No. 150,063

Claims priority, application Japan, May 16, 1979, 54-64986[U]; Jun. 1, 1979, 54-74401[U]; Jul. 11, 1979, 54-95176[U]; Aug. 24, 1979, 54-116521[U]; Aug. 30, 1979, 54-119590[U]

Int. Cl.³ D06C *29/00*

U.S. Cl. 28—155 **2 Claims**



1. An apparatus for continuously untwisting and crimping of a cloth, comprising a treating chamber, a pair of endless net conveyers located in said treating chamber one positioned above the other forming a gap therebetween to serve as a cloth passage, a plurality of jet pipes each having a series of nozzles for jetting a high pressure fluid into the cloth passage, with said jet pipes arranged in a zigzag manner up and down on both outer sides of the gap within said net conveyers so that said nozzles direct the jets of high pressure fluid through said net conveyers into the gap, a support plate for each of said endless net conveyers, said jet pipes supported on said support plates supporting said endless net conveyers within which said jet pipes are arranged, means for moving at least one of said support plates toward and away from the other with the opposite ends of the support plate being movable independently of one another for varying the gap between said endless net conveyers and between said jet pipes so that the gap between said endless net conveyers can be uniform for the length thereof and so the gap can be of a variable dimension along the length, a pair of guide rollers located at the opposite ends of each said endless conveyers and said guide rollers supported on said support plate which supports said endless conveyer at the opposite ends of which said guide rollers are located, and second means mounted on said support plates for supporting each said pair of guide rollers for controlling the tension applied to said endless conveyers.

4,339,857

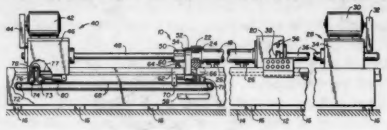
INTEGRATED CYLINDER FINISHING SYSTEM

Lawrence C. Dickinson, 2255 Eva Adams, Reno, Nev. 89504

Filed Aug. 11, 1980, Ser. No. 176,941

Int. Cl.³ B23B *41/16, 47/34*

U.S. Cl. 29—26 A **14 Claims**



9. A method for finishing the cylindrical interior of a workpiece comprising the steps of:

mounting the workpiece to allow access to the cylindrical interior thereof from each end;

advancing a skiving tool into and through the cylindrical interior of the workpiece from one end thereof to machine said cylindrical interior;

introducing cutting oil into the cylindrical interior of the workpiece to entrain the chips resulting from the skiving tool advancing step and flush said chips out through the second, opposite end of the workpiece;

deflecting the cutting oil and entrained chips at the second end of the workpiece into a collector during said skiving tool advancing step;

moving the deflecting means to expose the second end of the workpiece upon completion of the skiving tool advancing step;

and

advancing a finishing tool into and through the cylindrical interior of the workpiece from the second end thereof subsequent to said moving step to remove imperfections in the surface of the cylindrical interior of the workpiece formed during said skiving tool advancing step.

4,339,858

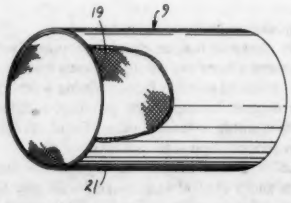
DAMPENER ROLL COVER

Stanley G. Peterson, Minneapolis, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed Nov. 3, 1980, Ser. No. 203,233

Int. Cl.³ B21B *31/08;* B60B *7/02*

U.S. Cl. 29—131 **12 Claims**



1. A cylindrical shaped article of substantially uniform cross-sectional dimension having inner and outer concentrically positioned layers, said inner layer comprising a water wickable textile fabric, and said outer layer comprising a porous, smooth, continuous surfaced, hygroscopic, cohesive, non-woven member of hydrophilic randomly disposed fibers, bonding means for bonding said inner layer to said outer layer along the interface of said inner and outer layers, said cylindrical article having a first radial dimension when dry, a second radial dimension when wetted in the presence of a radially expansive force, said second radial dimension being greater than said first radial dimension, said article being capable of retaining said second radial dimension upon drying, and a third

radial dimension upon rewetting, said third radial dimension being smaller than said second radial dimension.

4,339,859

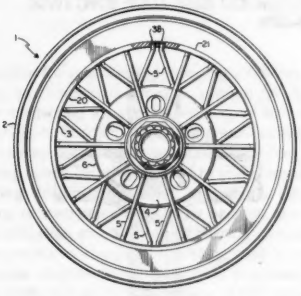
WIRE SPOKE AUTOMOTIVE WHEEL MANUFACTURING METHOD

Richard G. Weld, Independence, Mo., assignor to Weldwheels, Inc., Kansas City, Mo.

Continuation-in-part of Ser. No. 918,606, Jun. 23, 1978, Pat. No. 4,226,479. This application Aug. 18, 1980, Ser. No. 178,795

Int. Cl.³ B21K *1/34*

U.S. Cl. 29—159.03 **10 Claims**



1. In the manufacture of a wire spoke automotive wheel having a felly with spaced spoke receiving bores extending circumferentially therearound and spokes having radially outer ends and each having an associated felly bore, a method of producing said bores and securing said spoke outer ends within said bores comprising the steps of:

(a) securing a die having at least one channel therethrough to the outer circumferential surface of the felly;

(b) placing a circular punch adjacent the inner circumferential surface of the felly at a point radially inward from a corresponding channel in the die, said punch being of substantially smaller diameter than said channel;

(c) punching a plug out of the felly by forcibly applying the punch to the inner circumferential surface of the felly whereby the bore punched in the felly has a generally frustoconical shape such that an outer circumferential dimension of the bore is larger than a corresponding inner circumferential dimension;

(d) inserting a spoke outer end having a side surface partially within a felly bore, thereby leaving a cavity within said felly bore atop said spoke outer end, said spoke side surface being spaced from said bore wall; and

(e) feeding a welding wire into said cavity under wire melting conditions thereby producing a weld formation fused to said spoke outer end, side surface, and felly.

4,339,860

METHOD OF PRODUCING CHANNEL-SHAPED TRIM

Keizo Hayashi, Nagoya, Japan, assignor to Toyoda Gosei Co., Ltd., Nagoya, Japan

Filed Jun. 29, 1979, Ser. No. 53,551

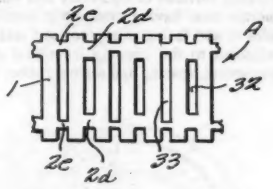
Claims priority, application Japan, Jun. 30, 1978, 53-91206[U]

Int. Cl.³ B23P *17/00*

U.S. Cl. 29—413 **6 Claims**

1. A method for producing channel-shaped trim having a longitudinally extending opening for embracing and clamping an edge flange of a support member comprising the steps of

forming a core member for said trim by slotting a band of material to produce a plurality of cut out areas defining a plurality of spaced apart transversely extending stripshaped pieces each of which is connected to adjacent stripshaped pieces by connecting portions located adjacent each edge of the band, weakening predetermined opposed pairs of the connecting portions so as to define a plurality of core pieces comprised of at least two stripshaped pieces joined together by at least two unweakened connecting portions located on opposite edges of said core piece,



covering said core member with a covering material to form a composite band structure;

breaking the weakened connecting portions thereby separating the core pieces, and

bending the composite band structure to provide said channel-shaped trim.

4,339,861

CONTINUOUS WORKING PROCESS OF STEEL BARS FOR REINFORCED CONCRETE AND APPARATUS THEREFOR

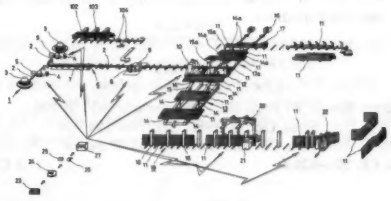
Hiroshi Shiraishi, Mitaka, and Shigeru Moriguchi, Chiba, both of Japan, assignors to Kajima Corporation and Mitsui Engineering and Shipbuilding Co., both of Tokyo, Japan

Filed Mar. 24, 1980, Ser. No. 133,105

Claims priority, application Japan, Mar. 23, 1979, 54-33946

Int. Cl.³ B23P *17/00*

U.S. Cl. 29—416 **8 Claims**



1. A continuous working process of steel bars for reinforced concrete, comprising: feeding an endless steel bar material to a cutter by intermittently repeating the advance of said material in a predetermined distance and the stop thereof; cutting the endless steel bar thus fed by said cutter into steel bars having a predetermined length; firmly banding together the steel bars thus cut by a predetermined plural number into a laterally slat-like shaped bundle; and bending the bundle into a predetermined shape while retaining the lateral slat-shape.

4,339,862

METHOD OF MAKING RUBBER/VISCOUS TORSIONAL VIBRATION DAMPERS

Ronald L. McLean, Tonawanda, and Gordon W. Kamman, Elma, both of N.Y., assignors to Houdaille Industries, Inc., Fort Lauderdale, Fla.

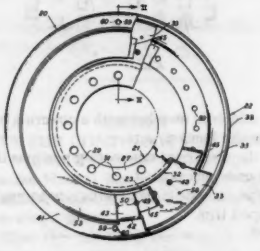
Division of Ser. No. 119,218, Feb. 7, 1980. This application Apr. 29, 1981, Ser. No. 258,565

Int. Cl.³ B23P *11/00, 17/00*

U.S. Cl. 29—424 **17 Claims**

1. A method of making a rubber/viscous torsional vibration damper assembly of the type having supporting rotor disk

means with a radially outwardly extending circular body and a radially inner hub portion adapted to be secured to a rotary member such as a crankshaft subject to vibrations to be damped by the damper, said body being received concentrically within a radially inwardly opening annular working chamber of an annular inertia mass, a viscous damping medium in said chamber between shear film spaced cooperatively confronting working surfaces of said body and said inertia mass, and said inertia mass having concentric annular grooves at opposite sides of and facing axially toward said body radially inwardly adjacent to the opening from said chamber, with elastic tuning spring, spacing and sealing rubber rings coupling



surface areas on said inertia mass in said grooves with opposing surface areas on said body, comprising:

providing low melting point metal barrier means between said working chamber and said grooves;

molding and vulcanizing said rubber rings in said grooves and bonding them to said surface areas, while relying on said barrier means against any detrimental intrusion of the material of said rings into said working chamber;

curing said rings;

and melting and removing said barrier means and thereby freeing the volume within said inertia mass occupied by said barrier means then providing a fill of said viscous damping medium.

4,339,863

LOCK OPENING TOOL

Andrew Block, 90 Eton Rd., Thornwood, N.Y. 10594

Filed Oct. 8, 1980, Ser. No. 194,994

Int. Cl.[3] B23B *35/00*; B23P *19/04*

U.S. Cl. 29—426.4 **3 Claims**

1. A process for opening a mortise cylinder-type lock without a key comprising:

a. drilling a hole through the cylinder of said lock;

b. inserting into said hole an elongated, hollow member having a first opening at one end and a circumferential opening at the opposite end, a strip of spring steel being inserted through said first opening to said circumferential opening.

c. inserting said elongated member within said hole formed in said lock until the circumferential opening extends beyond the lock body;

d. extending said spring steel strip through said circumferential opening to engage the end of said strip with the lock cylinder counterpart; and

e. turning said elongated member so that the end of said steel strip engaged with said lock cylinder counterparts opens the lock.

4,339,864

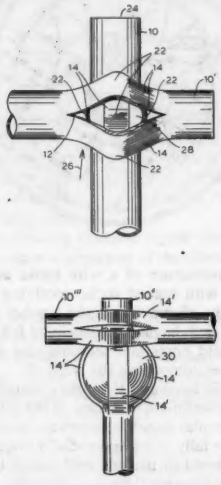
METHOD OF FORMING INTERLOCKING PIPE JOINT

Daniel W. Seregely, P.O. Box 2021, Santa Monica, Calif. 90406

Filed Oct. 29, 1979, Ser. No. 89,632

Int. Cl.[3] B23P *11/02*; B29C *19/00*

U.S. Cl. 29—450 **4 Claims**



1. The method of joining two like cylindrical tubes of resiliently flexible material at substantially right angles comprising the steps of:

(a) forming longitudinal members from the sidewalls of each of the tubes at substantially 90° intervals at the intended point of joining about the circumference thereof for a length of between two and four times the diameter of the tubes;

(b) bowing said longitudinal members of each of the tubes outwardly at right angles to the longitudinal axis of the tube to a point where the centers of adjacent ones of said longitudinal members are spaced at a distance substantially equal to the diameter of the tubes;

(c) inserting the end of one of the tubes between a first two of said longitudinal members of the other tube normal to the longitudinal axis thereof;

(d) passing said one of the tubes through said other of the tubes to emerge from between the other two of said longitudinal members of said other tube;

(e) continuing to pass said one of the tubes through said other tube between said longitudinal members thereof until said longitudinal members of said one tube are adjacent said longitudinal members of said other tube; and

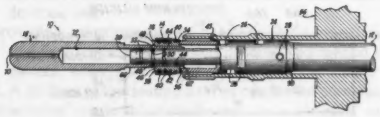
(f) urging said longitudinal members of said one tube through the space between said first two of said longitudinal members of said other tube into bowed engagement with the interior space formed in said other tube by said longitudinal members thereof.

4,339,865

APPARATUS AND METHOD FOR INSERTING AND REMOVING BUSHINGS AND BEARINGS

William E. Shultz, 239 N. Main St., Lombard, Ill. 60148

Filed Mar. 7, 1980, Ser. No. 127,939
Int. Cl.[3] B23P *19/04;* B25B *27/02*
U.S. Cl. 29—525 18 Claims



1. Apparatus for removing or inserting a bushing or bearing comprising an elongated bushing or bearing driving shaft;

means for contacting an annular bushing or bearing surface, said bushing or bearing contacting means including a bushing or bearing contacting shoulder, said bushing or bearing contacting means being connected to said elongated bushing or bearing driving shaft when operatively assembled for removing or inserting a bushing or bearing; and

means for adjusting said bushing or bearing contacting shoulder comprising an elongated spreading shaft having an interior surface adapted to be operatively positioned over said driving shaft, and an exterior surface of said spreading shaft contacting an inner surface of said bushing or bearing contacting means when operatively assembled for removing or inserting a bushing or bearing, said exterior spreading shaft surface in contact with said inner surface of said bushing or bearing contacting means being of substantially constant diameter to apply consistent pressure on said interior surface of said bushing or bearing contacting means each time the spreading shaft is operatively positioned and to adjust said bushing or bearing contacting shoulder outwardly an accurate, consistent predetermined distance each time said spreading shaft is operatively positioned.

4,339,866

METHOD OF CONNECTING A TUBE TO A FLANGE

Edward R. Horton, Dunlap, and John L. Hughes, Peoria, both of Ill., assignors to Caterpillar Tractor Co., Peoria, Ill.

PCT No. PCT/US80/00642, § 371 Date May 27, 1980, § 102(e) Date May 27, 1980, PCT Pub. No. WO81/03443, PCT Pub. Date Dec. 10, 1981
PCT Filed May 27, 1980, Ser. No. 245,226
Int. Cl.[3] B21D *39/00;* B23P *11/02*
U.S. Cl. 29—523 5 Claims

1. A method of connecting a tube (12) to a flange (120), comprising:

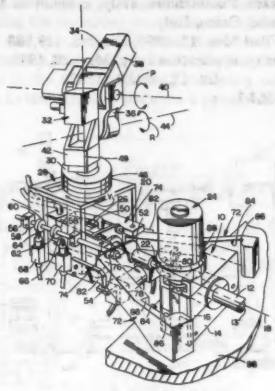
Step (a) placing tube (12) with the flange (120) on the end thereof between first and second portions (14,16) of a holding apparatus (10);

Step (b) closing one of the portions (14,16) of the holding apparatus (10) and gripping the tube (12) securely between the portions (14,16) by operation of a first powered actuator (24);

Step (c) positioning a force-transmitting apparatus (20) including a punch (22) of preselected external contour into axial alignment with the tube (12) and the flange (120);

Step (d) closing a pair of gripping arms (72) of the force-transmitting apparatus (20) embracingly on the holding apparatus (10) by operation of a third powered actuator (76); and

Step (e) forcing the punch (22) axially into the tube (12) and expanding the tube (12) radially outwardly into interlocking engagement with the flange (120) by operation of a second powered actuator (26) of the force-transmitting apparatus (20).

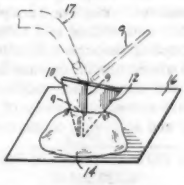


4,339,867

METHOD FOR FIXTURING WORKPIECES FOR HEAT EFFECTED JOINING OF SAME

Barry D. Reznik, 2224 E. 59th Pl., Brooklyn, N.Y. 11234

Filed Dec. 27, 1979, Ser. No. 106,888
Int. Cl.[3] B23Q *7/00;* B23P *17/00;* B27F *7/02;* B23K *9/28*
U.S. Cl. 29—559 10 Claims



1. A method for fixturing two or more workpieces in a desired positional relationship to one another for the heat effected joining of same comprising in the following order the steps of:

a. depositing a quantity of moldable, heat resistance workpiece holding material on a work surface;

b. inserting portions of each of the workpieces to be joined into said holding material with portions thereof to be heated left exposed;

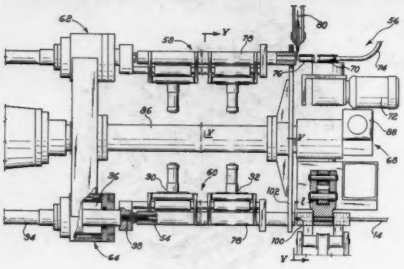
c. moving the inserted workpieces to the desired positional relationship with one another by adjusting the relative positions of the workpieces; and

d. manipulating said holding material for conformance to the contours of the inserted portions of the workpieces whereby said workpieces can be joined by heat effected means such as welding.

4,339,868
PLASTIC TUBE ELEMENT MANUFACTURING APPARATUS

Giacomo Mazzer, Pontelambro, Italy, assignor to Mazzer Materie Plastiche, Como, Italy

Filed Mar. 12, 1980, Ser. No. 129,703
Claims priority, application Italy, Mar. 28, 1979, 21376 A/79
Int. Cl.[3] B23P *19/02*
U.S. Cl. 29—564.1 8 Claims



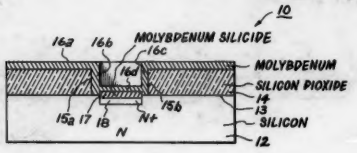
1. An apparatus for automatically forming plastic tubular members of predetermined length and for connecting a coupling to at least one end thereof, said apparatus comprising:
- a rectilinear conveyor guide;
- feed means for feeding plastic tubing along said conveyor guide;
- detector means for detecting when a predetermined length of said tubing has been fed onto said conveyor guide and then for stopping said feed means;
- cutter means for, upon stopping said feed means, cutting said tubing to thereby form a plastic tubular member of predetermined length;
- means for transferring said tubular member from said conveyor guide to a coupling connection position;
- means at said coupling connection position for gripping said tubular member against axial movement thereof;
- means for supplying a coupling to said coupling connection position and for aligning said coupling axially of an end of said tubular member;
- a mandrel; and
- connecting means at said coupling connection position for inserting said mandrel through said coupling, for inserting said mandrel into said end of said tubular member, for moving said coupling through a first movement axially toward said end of said tubular member before connection therebetween, and for further moving said coupling through a second movement axially of said end of said tubular member and achieving connection therebetween.

4,339,869
METHOD OF MAKING LOW RESISTANCE CONTACTS IN SEMICONDUCTOR DEVICES BY ION INDUCED SILICIDES

Robert F. Reihl, Gloversville, N.Y., and Kang-Lung Wang, Santa Monica, Calif., assignors to General Electric Company, Schenectady, N.Y.

Filed Sep. 15, 1980, Ser. No. 187,043
Int. Cl.[3] H01L *29/72, 21/285, 21/265*
U.S. Cl. 29—576 B 15 Claims

1. The method of forming an electrical contact comprising:
- providing a substrate of silicon semiconductor material having a major surface,
- forming a layer of a refractory metal selected from the class consisting of molybdenum and tungsten over a portion of said surface of said substrate,
- implanting dosage of ions of one conductivity inducing type through said layer of refractory metal and into said substrate to form a layer of a compound including said refractory metal and said silicon semiconductor material at the interface of said layer of refractory metal and said substrate and to form a region of said one conductivity type in said substrate contiguous to said layer of said compound, said dosage

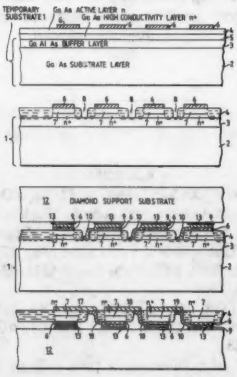


being sufficiently large to provide a net activator concentration in said region whereby conduction between said layer of said compound and said region occurs predominantly by electron tunneling.

4,339,870
SERIES-CONNECTED TWO-TERMINAL SEMICONDUCTOR DEVICES AND THEIR FABRICATION

Geoffrey Ball, Sandy; Harry A. Deadman, Clifton Shefford; John G. Smith, Biggleswade, and John C. Vokes, Harpenden, all of England, assignors to The Secretary of State for Defence in Her Britannic Majesty's Government of the United Kingdom of Great Britain and Northern Ireland, London, England

Filed Nov. 13, 1980, Ser. No. 206,680
Claims priority, application United Kingdom, Nov. 15, 1979, 7939564
Int. Cl.[3] H01L *21/265, 21/283, 21/308*
U.S. Cl. 29—576 B 14 Claims



1. A method of fabricating a series-connected combination of two-terminal semiconductor devices on a common substrate comprising the steps of:
- forming a layer of high quality semiconductor material on the surface of a temporary substrate to provide active areas for the devices the layer having a first free surface not in contact with the temporary substrate,
- forming first contact pattern conductors on the free surface of said high quality semiconductor layer to provide a separate first contact to this layer for each of the devices,
- bonding an insulating support substrate to said first contact pattern,
- removing said temporary substrate to expose a second surface of the high quality semiconductor material,
- forming second contact pattern conductors on the second

surface of said high quality layer to provide a separate second contact to this layer for each of the devices,

removing regions of the high quality layer separating the conductors of one of said patterns at any step of the method after beginning formation of said first contact pattern thereby defining said device active areas and exposing parts of said first contact pattern when both the temporary substrate and said regions of the high quality layer have been removed such that both said first and said second contacts are accessable from the same side of said devices, and

providing interconnections between the exposed parts of said first contact pattern and parts of said second contact pattern, whereby to connect the devices in series.

6. A method of fabricating a series connected combination of two-terminal semiconductor devices on a common substrate comprising

fabricating a first precursor by the following procedure:

forming a layer of high quality semiconductor material on the surface of a temporary substrate to provide active areas for the devices,

forming first contact pattern conductors on the free surface of said high quality semiconductor layer to provide a separate first contact to this layer for each of the devices thereon,

bonding an insulating support substrate overlayed by a conducting interconnection pattern to said first contact pattern so as to provide contact between said first and the interconnection patterns,

removing said temporary substrate,

forming second contact pattern conductors on the other surface of said high quality layer to provide a separate second contact to this layer for the devices thereon,

at any stage after high quality semiconductor layer formation removing regions of this layer which separate a contact pattern's conductors so as to form isolated regions sandwiched between said first and second contact pattern conductors,

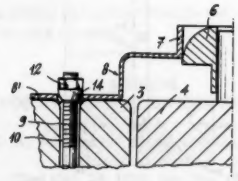
fabricating a second precursor by the same procedure as that used for said first precursor, and bonding said first and second precursors together so as to provide contact between the second contact pattern of the one and the interconnection contact pattern of the other.

4,339,871

METHOD OF CENTER LOCKING FOR THE BEARING OF A ROTOR SHAFT UNIT ON THE STATOR OF AN ELECTRIC MOTOR

Adriano Magnaghi, Mozzate Coma, Italy, assignor to Olmo Emerson S.p.A., Caronno Pertusella, Italy

Filed Sep. 13, 1979, Ser. No. 74,956
Claims priority, application Italy, Sep. 19, 1978, 27834 A/78
Int. Cl.³ H02K *15/14*
U.S. Cl. 29—596 **3 Claims**



1. A method for center locking a cap of a stator of an electric motor, said motor including a rotor, said cap being attached to said stator by rods passing through channels in said stator, said cap having openings in it for loose passage of said rods, and means associated with said cap along said openings for mounting said cap to said stator, said mounting means initially being in a plane parallel to an end face of said stator, comprising the steps:

registering said rotor relative to said stator;

placing at least one cap at centered relationship with respect to said stator; and

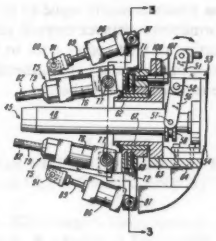
tightening at least one nut on said rods so as to cause a force deforming the mounting means associated with said openings in said cap from said parallel plane so as to engage said channels and ensuring a constant center for the cap relative to the stator, thereby positioning said rotor with respect to said stator to maintain a proper air gap therebetween.

4,339,872

APPARATUS AND METHOD FOR WINDING ARMATURES

Robert D. George, and Robert P. Hoy, both of Dayton, Ohio, assignors to Mechaneer, Inc., Dayton, Ohio

Filed Aug. 6, 1980, Ser. No. 175,905
Int. Cl.³ H02K *15/09*
U.S. Cl. 29—597 **14 Claims**



1. In apparatus for winding an armature having a shaft supporting a core and a commutator having laterally spaced hook-shaped commutator tangs, said apparatus including means for supporting an armature at a winding station, power driven winding means supported for rotation relative to said supporting means for successively winding at least one wire into a series of coils on the core, means for selectively presenting each of the commutator tangs for receiving a lead wire extending from a coil to said winding means, and wire gripping means for engaging the wire extending from said winding means to the coil, the improvement comprising means supporting said wire gripping means for rotation on generally the axis of the armature shaft from a first position where the wire is engaged by said wire gripping means to a second position disposed at a substantial angle from said first position where the wire is severed generally adjacent a commutator tang.

4,339,873

METHOD OF MAKING ROTOR OF ROTARY MACHINES

Hisanobu Kanamaru, Ibaraki; Moisei Okabe, Tokyo; Hideo Tatsumi, Ibaraki; Akira Tohkairin, Ibaraki, and Ryoji Kasama, Ibaraki, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

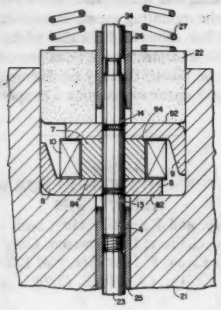
Filed Feb. 27, 1980, Ser. No. 125,094
Claims priority, application Japan, Mar. 5, 1979, 54-24492
Int. Cl.³ H02K *15/02*
U.S. Cl. 29—598 **7 Claims**

1. A method of fastening a rotor core for a rotary machine, comprising:

providing a rotary shaft having at least one annular groove in the circumference thereof;

inserting said rotary shaft into a shaft receiving hollow portion of a rotor core so as to position the annular groove at a position slightly on the inner side of an end surface of said rotary core; and

cold-pressing a portion of said end surface near the shaft receiving hollow portion of said rotary core while exerting a preload on the remaining portion of said end surface of said rotary core said preload subjecting said core mem-



ber to a stress which is nearly equal to or slightly smaller than the deformation resistance thereof, said cold-pressing causing a portion of said rotary core to flow plastically into the groove of said rotary shaft, thereby to fasten the core and the rotary shaft together.

4,339,874

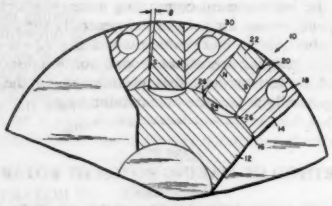
METHOD OF MAKING A WEDGE-SHAPED PERMANENT MAGNET ROTOR ASSEMBLY

Frederick B. Mc'Carty, San Pedro, and Alexander Silver, Tarzana, both of Calif., assignors to The Garrett Corporation, Los Angeles, Calif.

Division of Ser. No. 973,346, Dec. 26, 1978, Pat. No. 4,242,610. This application Mar. 10, 1980, Ser. No. 214,357

Int. Cl.³ H02K *15/02*

U.S. Cl. 29—598 **6 Claims**



1. A method of forming a rotor for a permanent magnet machine, comprising the steps of:

affixing a plurality of inwardly converging, wedge-shaped support members equally spaced around the periphery of a rotor hub to form a plurality of outwardly converging, wedge-shaped slots therebetween;

inserting a plurality of wedge-shaped permanent magnets having outwardly converging sides, individual magnets disposed in individually outwardly converging wedge-shaped slots between support members; and

rotating the rotor to wedge the outwardly converging permanent magnets into the outwardly converging slots without additional restraint on said magnets.

4,339,875

METHOD OF ASSEMBLING A GALVANOMAGNETIC SENSOR IN A CAVITY IN A CONDUCTING PLATE

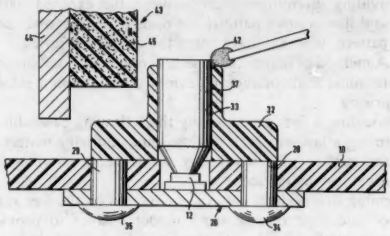
Rolf Müller, St. Georgen, Fed. Rep. of Germany, assignor to Papst-Motoren KG, St. Georgen, Fed. Rep. of Germany

Filed Apr. 25, 1980, Ser. No. 143,604

Claims priority, application Fed. Rep. of Germany, May 7, 1979, 2918329

Int. Cl.³ H01F *41/02*

U.S. Cl. 29—602 R **7 Claims**



1. A manufacturing method for assembling and mounting a galvanomagnetic sensor, such as a hall generator, in a cavity in a circuit board, means being provided for flux concentration including on one side of the circuit board a flat flux concentrator and on the other side of said circuit plate, a flux concentrating body that is tapered toward said galvanomagnetic sensor, said method comprising the steps of:

(a) mounting said galvanomagnetic sensor in said cavity in said circuit board;

(b) thereafter affixing a first flux concentrating means of generally flat configuration on the one side of said sensor;

(c) bringing said flux concentrating body which is tapered toward said sensor, into position immediately adjacent that sensor by force fitting into a holder; and

(d) fixing said tapered flux concentrator in its position adjacent to said galvanomagnetic sensor, relative to said circuit board.

4,339,876

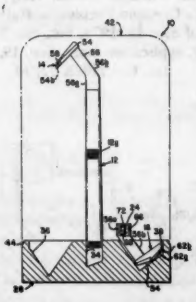
SHAVING SYSTEM AND METHOD

Alton A. Davis, 15900 NW. 45th Ave., Opa-Locka, Fla. 33054

Filed Nov. 3, 1980, Ser. No. 203,350

Int. Cl.³ B26B *21/40*

U.S. Cl. 30—90 **6 Claims**



1. A shaving kit comprising an elongated handle, a pair of blade assemblies to be used in sequence, each assembly having an elongated neck and a head formed integrally with the neck, a single edge blade mounted in one shaving assembly head, a pair of closely spaced, parallel blades mounted in the other shaving assembly head, coacting means on an end of the handle

and on the free end of the neck of each blade assembly for detachably connecting the neck to the handle, and a caddy for removably retaining the handle and the two blade assemblies, said caddy comprising a container having three receptacles, one receptacle sized to receive and retain an end of the handle and the other two receptacles sized to receive and retain the two blade assemblies.

4,339,877

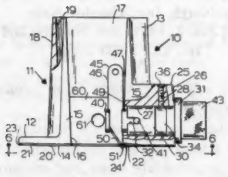
HAND-HELD CUTTER FOR CUTTING MOUNTING BOARD AND THE LIKE

Donald C. Pierce, 1253 C Redwood Blvd., Novato, Calif. 94947

Division of Ser. No. 55,345, Jul. 6, 1979, Pat. No. 4,262,419, which is a continuation-in-part of Ser. No. 22,423, Mar. 21, 1979, abandoned. This application Oct. 3, 1980, Ser. No. 193,884

Int. Cl.³ B26B *29/00*

U.S. Cl. 30—293 **25 Claims**



1. A handheld cutter for cutting mounting board and the like, including in combination:

a handle and support member shaped as an annular segment bounded by a pair of aligned substantially vertical planar surfaces extending on both sides of a gap in the annulus, and having a generally flat bottom wall and an upstanding hand-engaging portion,

said handle and support member having a generally cylindrical wall, a first horizontal through opening generally parallel to said planar surfaces, a generally vertical wall around the outer end of said first through opening, and a second horizontal through opening extending perpendicularly to the direction of said first through opening and facing said gap,

a blade-holding means extending through said first through opening and rotatable therein and secured to said handle and support member for retaining a cutting blade at a plurality of angular positions and for adjusting the cutting depth of the blade,

retention means extending into said first through opening and engaging said blade-holding means in a desired rotational position,

a cutting blade adjustably held in said blade-holding means, and

a rod attachment extending through and adjustably secured to said second opening.

4,339,878

DEVICE FOR CUTTING FLOWERS, FRUIT AND THE LIKE

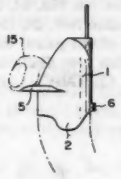
Vincenzo G. A. Tozzi, 1166 Monticello Rd., Lafayette, Calif. 94549

Filed Oct. 20, 1980, Ser. No. 198,622

Int. Cl.³ B26B *27/00*

U.S. Cl. 30—298 **5 Claims**

1. A device for cutting flowers, fruit or the like which comprises a thimble to be inserted on the thumb of one hand, the thimble comprising an essentially cylindrical portion and a tapered portion closed at the top and integral with said cylindrical portion, said thimble being provided with a channel for insertion of a cutting tool in a direction parallel to the axis of the thimble, and with a flange on the side opposite to the cutting tool, said flange being spaced from the lower end of the thimble, said flange being essentially perpendicular to the axis



of the thimble, said flange providing support for the index finger of the same hand to rest during the cutting operation.

4,339,879

METHOD FOR ADJUSTING THE POSITION OF THE PROBES OF A PLUG GAUGE AND RELEVANT PLUG GAUGE

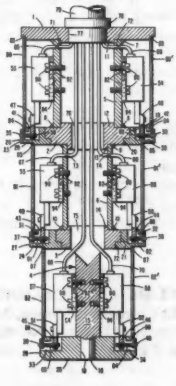
Narciso Selleri, Monteveglio, Italy, assignor to Finike Italiana Marposs, S.p.A., S. Marino di Bentivoglio, Italy

Filed Jul. 22, 1980, Ser. No. 171,162

Claims priority, application Italy, Aug. 3, 1979, 3479 A/79

Int. Cl.³ G01B *5/12, 7/12*

U.S. Cl. 33—178 E **19 Claims**



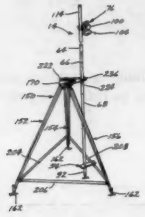
6. A plug gauge comprising a support adapted to define a geometrical axis of the plug gauge; a protection plug adapted to be fixed to the support; and measuring heads adapted to be fixed to the support, the measuring heads including probes adapted to cooperate with the surface of the part to be checked and adjusting means for adjusting the rest position of the probes with respect to the support, and wherein said plug has a shape substantially annular, with a limited height with respect to the height of the gauge, for protecting the probes while permitting the accessibility of the measuring heads, the plug defining radial openings for the passage of the probes, said radial openings providing spatial references for adjusting the probes with respect to the support.

4,339,880

DEVICE FOR HOLDING SURVEYOR'S INSTRUMENT

George W. Hall, Sioux City, Iowa, assignor to Beverly J. Hall, Sioux City, Iowa, a part interest

Continuation-in-part of Ser. No. 953,704, Oct. 23, 1978, Pat. No. 4,192,076. This application Nov. 26, 1979, Ser. No. 97,193
The portion of the term of this patent subsequent to Mar. 11, 1997, has been disclaimed.
Int. Cl.³ G01C *15/08*
U.S. Cl. 33—293 9 Claims



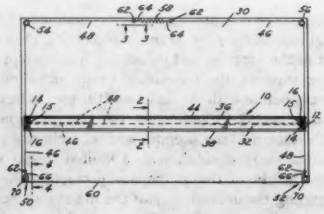
1. A device for holding a surveyor's instrument comprising:
a tripod having a platform member and three legs hingedly connected at their upper ends to said platform member;
three connecting members interconnecting said lower ends of said legs, each of said connecting members having one of its ends detachably secured adjacent the lower end of one of said legs and the other of its ends detachably secured adjacent the lower end of another of said legs, whereby said connecting members when so secured to said legs hold said legs against pivotal movement of said legs about their hinged connections to said platform member;
a vertical range pole having upper and lower ends;
range pole holding means on said tripod for holding said range pole against movement with respect to said tripod, said range pole holding means comprising an upper bracket and a lower bracket, said upper bracket being operatively mounted to said platform and said lower bracket being operatively connected to one of said connecting members,
a range pole adapter mounted to said upper end of said range pole for vertical sliding movement thereon, said adapter having manually operable securing means thereon for selectively holding said adapter against vertical sliding movement on said range pole;
a surveyor's instrument operably attached to said adapter so as to be carried therewith during said vertical sliding movement of said adapter on said range pole.

4,339,881

PARALLEL-RULING STRAIGHTEDGE

Dennis R. Kapp, 7780 Chichester, Canton, Mich. 48187

Filed Aug. 19, 1977, Ser. No. 826,275
Int. Cl.³ B43L *13/02, 7/00*
U.S. Cl. 33—444 12 Claims



1. A parallel-ruling straightedge assembly for a drafting and graphic arts table comprising an elongated base member, means carried by said base member for mounting said base member to translate over the surface of a drafting and graphic arts table in a direction generally perpendicular to the elongated dimension of said base member, and first and second straightedge means extending along opposite longitudinal edges of said base member, said first straight-edge means being of a transparent plastic material and having a longitudinally extending edge remote from said base member constructed and arranged for drafting, and said second straightedge means being a metallic material and having a longitudinally extending edge remote from said member constructed and arranged for stripping sheet material.

4,339,882

ORGANIC SOLID SUBSTRATE DEWATERING PROCESS UTILIZING PRIMARY AND SECONDARY SOLVENTS

Leland C. Dickey, and Maya Tayter, both of Omaha, Nebr., assignors to InterNorth, Inc., Omaha, Nebr.

Filed Jul. 2, 1981, Ser. No. 280,264
Int. Cl.³ F26B *3/00*
U.S. Cl. 34—9 6 Claims

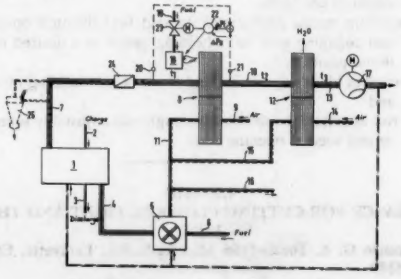
1. A method of removing water from organic solid substrates which comprises:
(a) contacting the substrate with a primary solvent to remove at least a large portion of the water therefrom,
(b) separating the substrate from the mixture of primary solvent and water,
(c) contacting said mixture with a secondary solvent which is miscible with the primary solvent but not with water to separate the primary solvent from the water,
(d) separating the water from the mixture of primary solvent and secondary solvent, and
(e) separating the primary and secondary solvents.

4,339,883

PROCESS AND APPARATUS FOR THE SEPARATION OF HARMFUL SUBSTANCES FROM WASTE GASES, PARTICULARLY IN THE DRYING OF WOOD CHIPS

Günter Waldmann, Packenreiterstr. 18b, D-8000 München, Fed. Rep. of Germany

Filed Jun. 23, 1980, Ser. No. 162,109
Claims priority, application Fed. Rep. of Germany, Jul. 2, 1979, 2926663
Int. Cl.³ F26B *3/04*
U.S. Cl. 34—27 27 Claims



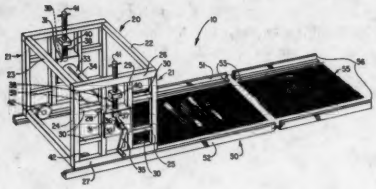
1. A process for drying wood chips and/or lacquer comprising providing a stream of hot gas; passing the hot gas over the wood chips and/or lacquer to be dried; removing the now waste gas from the wood chips and/or lacquer to be dried; cooling the waste gas by exchanging heat until the volatile substances carried will condense and/or precipitate concomitantly binding dust and/or similar materials; and intermittently burning off the precipitated and/or condensed material.

4,339,884

APPARATUS FOR DRYING FISH, ESPECIALLY SQUID

Donald Andrews, P.O. Box 88, Topsail, Newfoundland, Canada (A0A 3Y0)

Filed Nov. 5, 1980, Ser. No. 204,317
Claims priority, application Canada, Jul. 28, 1980, 357145
Int. Cl.[3] F26B *25/10, 11/18*
U.S. Cl. 34—93 19 Claims



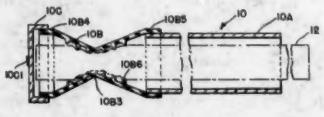
1. Apparatus for the processing of fish which comprises:
(a) a frame having an upper perforated bed or flake and a lower pair of parallel tracks or rails;
(b) an upright framework associated with said frame and disposed at one end of said frame and adapted to be moved along the tracks or rails from said one end of said frame to the opposite end of said frame;
(c) a roller mechanism including a round or polygonal roller rotatably mounted in said upright framework;
(d) a mesh material;
(e) means for securing one end of said mesh material to said roller;
(f) means for securing the other end of said mesh material to the opposite end of said frame; and
(g) means for simultaneously moving said upright framework along said rails from said one end of said frame to the opposite end of said frame while winding said mesh material on said roller mechanism, whereby said mesh material is converted from a spread orientation disposed in an extended position atop said flake with said framework at said one end of said frame, and a storage orientation with said mesh material wound on said roller mechanism with said framework at said opposite end of said frame.

4,339,885

IDENTIFICATION MEANS FOR ROLLED-UP ARTICLES, SUCH AS DRAWINGS AND THE LIKE

Richard K. Brown, 8116 Kenova La., Springfield, Va. 22153

Filed Nov. 25, 1980, Ser. No. 210,406
Int. Cl.[3] G09F *3/00, 3/18;* B05C *17/00;* B65D *69/00*
U.S. Cl. 40—309 7 Claims



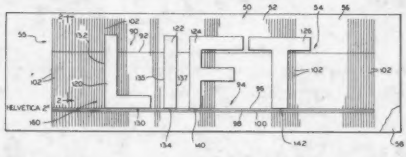
1. An identification means for enclosing at least a portion of rolled-up articles and for identifying said articles, comprising:
first body means having one end thereof for receiving the rolled-up article, the first body means being made of a rigid material:
second body means having one end thereof attached to the opposite end of said first body means, said second body means being made of a resilient material for gripping the rolled-up article placed therein, and being made in the form of a single unitary structure, said second body means being concave in shape and including a central apex point and two opposite ends, the central apex point pointing internally of said first body means, the thickness of the two opposite ends of the second body means being greater than the thickness of said second body means at said central apex point;
cover means for enclosing the opposite end of said second body means; and
label means disposed on said cover means for identifying the rolled-up article placed therein.

4,339,886

LETTERING KIT AND ALIGNMENT GRID THEREFOR

Kenneth G. Griffiths, Downers Grove, and Stephen C. Woods, Clarendon Hills, both of Ill., assignors to Zipatone Inc., Hillside, Ill.

Filed Jul. 25, 1980, Ser. No. 172,431
Int. Cl.[3] G09F *7/16*
U.S. Cl. 40—595 16 Claims



1. In a lettering kit arrangement providing English alphabet letters of a predetermined font and nominal height for manually applying selected letters thereof to a selected substrate in a predetermined order and spacing, having their undersides coated with a pressure sensitive adhesive and releasably mounted on the release agent coated side of a backing sheet, an alignment grid sheet bearing an alignment grid for laying out said selected letters aligned in their said predetermined order on one side of same that is release agent coated, and a transfer sheet having one side of same coated with a pressure sensitive adhesive to which is releasably adhered a release coated backing that is removed for laying said one side of same over the laid out letters for pressure sensitive adherance thereto and manual transfer and application to the substrate,
the improvement wherein:
said grid comprises a working face, including a head horizontal base line indicia and a foot horizontal base line indicia delineated on said one side of said grid sheet,
said foot base line indicia comprising a top base line, a middle base line and a bottom base line extending in parallelism across said one side of said grid sheet with said middle base line centered between said top and bottom base lines,
said head base line indicia comprising a base line spaced above said middle base line of said foot base line indicia a dimension approximating three-fourths of said foot lettering nominal height,
said font base line indicia top and bottom base lines being spaced from the middle base line thereof a distance approximating one-half the difference between the height of the font capital letters that have horizontally rectilinear upper and lower ends and the height of the font capital letters that have rounded upper and lower ends,
said grid working face further comprising closely spaced vertical lines delineated on said one side of said grid sheet across said face,
said transfer sheet comprising a transparent film bearing said pressure sensitive adhesive,
said grid having a length to receive for layout purposes a predetermined number of the font letters for word forming purposes and said transfer sheet having a length that approximates the length of said grid,
with the adhesive coating of said letters having a release from said one side of said grid that is on the order of twenty grams and a release from the substrate that exceeds two hundred grams,
with the adhesive coating of said transfer sheet when said backing sheet thereof is removed having a release from

the top sides of said letters that is in the range of from about seventy to ninety grams and a release from the substrate that is in the range of from about one hundred to about one hundred twenty grams,

said font letters being layable out in uniform horizontal alignment by laying the lower ends of the font capital letters with horizontally rectilinear lower ends aligned with the top base line of said foot base line indicia, laying out the font lower case rounded letters with their lower ends aligned with the middle base line of said foot base line indicia, laying out the font capital letters that have convexly rounded lower ends in tangency with the lower base line of said foot base line indicia, and laying out the font elongated lower case letters with horizontally rectilinear upper portions thereof aligned with said base line of said head base line indicia, with predetermined vertical line separation between adjacent letters to achieve said spacing.

4,339,887

DECOY, MOLD AND METHOD OF CONSTRUCTION

Wesley R. Streeter, Rte. 1, Box 548, Bastrop, La. 71220

Filed Apr. 18, 1980, Ser. No. 141,415
Int. Cl.³ A01M *31/06*
U.S. Cl. 43—2 **1 Claim**

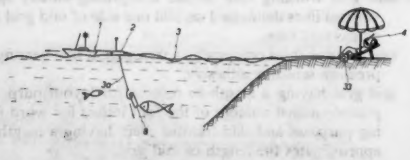
1. A decoy formed from an expanded foam material and comprising a body shaped to resemble a game bird; a cavity in the bottom of said body; leg projections on each side of said cavity and leg seats in said leg projections for removably receiving legs to support said decoy and a neck projection on the top of said body and a neck seat in said neck projection for removably receiving a head, said neck seat and said leg seats formed of a casting resin containing particles of aluminum.

4,339,888

REMOTE CONTROL FISHING DEVICE WITH AUTOMATIC LINE RETRIEVAL

Tseng Sheng-Jung, No. 50 Chiung Tai Rd., Hsin Chuang Chen, Taipei, Taiwan

Filed Apr. 23, 1979, Ser. No. 32,408
Int. Cl.³ A01K *97/00*
U.S. Cl. 43—26.1 **5 Claims**



1. An automatic fishing system for catching fish with an automatic fishing line retrieval which will eventually reel in a hooked fish regardless of the drag of the fish on the line, said system comprising:

a capstan retrieval means for recovering a primary fishing line, said capstan retrieval means including a capstan activation receiver means for activating a capstan motor upon receipt of a preset radio signal;

a fishing float means, connected to said capstan retrieval means by a primary fishing line, said float means including a line control motor means for controllably dispensing a secondary fishing line and a radio signal transmission means, responsive to forces applied to said secondary fishing line, for sending said preset radio signal to said capstan receiver means; and

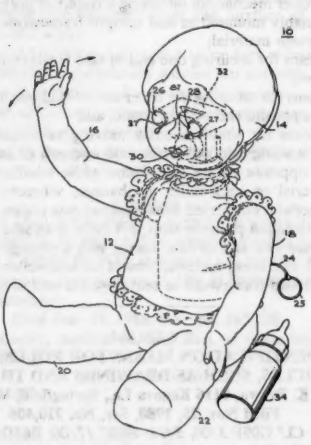
a radio controlled boat means, controllably connected to said fishing float means, for controllably towing said fishing float means to a desired fishing location.

4,339,889

MULTIPLE FUNCTION DOLL

Benjamin G. Guerrero, Los Angeles; Diana C. Troup, Cerritos, and Peter C. White, Rancho Palos Verdes, all of Calif., assignors to Mattel, Inc., Hawthorne, Calif.

Filed Feb. 1, 1980, Ser. No. 117,746
Int. Cl.³ A63H *11/00*
U.S. Cl. 46—135 A **7 Claims**



1. A doll comprising a body; a limb mounted to the body; a head having eyes supported by the body; and an operating mechanism positioned in the body including a motor, a cam driven by said motor, means linking the cam to the limb whereby the limb is moved by the operation of the motor, a drive shaft driven by the cam, a reservoir for liquid, means for conducting the liquid from the reservoir to an exit opening adjacent the eyes, and a pump connected to be operated by the driven shaft to move liquid from the reservoir through the conducting means to the exit opening.

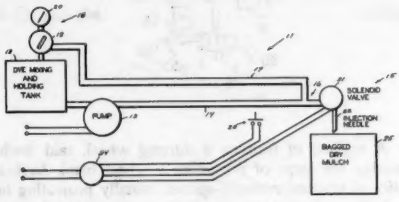
3. A doll operating mechanism comprising a motor, a shaft driven by the motor, an offset crank driven by the shaft, a cam surface driven by the motor, means connected to the cam surface for providing reciprocating circular motion, pump means connected to the crank for moving liquid, and a housing shaped to define a reservoir and to define conduits from the reservoir to the exterior of the mechanism, from the reservoir to the pump means and from the pump means to the exterior of the mechanism, the housing being further shaped to define eyes for a doll where the conduits from the pump means emerge to the exterior of the mechanism.

4,339,890

DRY SEEDING MULCH AND PROCESS OF MAKING SAME

Bruce E. Koenig, 2499 Jolly Rd., Okemos, Mich. 48864, and Thomas E. Niswander, 139 Woodmere St., Apt. 13, East Lansing, Mich. 48823, assignors to Bruce E. Koenig, East Lansing, Mich. and Thomas E. Niswander, Shaker Heights, Ohio, a part interest

Filed Jul. 18, 1980, Ser. No. 170,077
Int. Cl.³ A01G *7/00*
U.S. Cl. 47—9 **1 Claim**



1. In a process for producing a dry seeding mulch, the steps which include:

(a) reducing dry waste paper products into fine divided particles;

(b) mixing said finely divided particles of dry waste paper products with a dry chemical wetting agent in powder form so as to provide a dry seeding mulch mixture;

(c) placing said dry seeding mulch mixture into shipping bags;

(d) preparing said bags for shipment; and

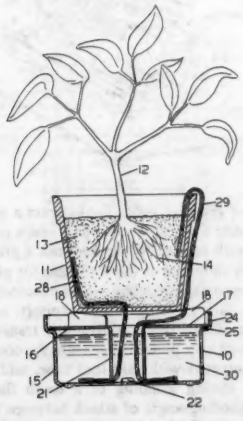
(e) injecting a viscous liquid coloring dye into said bagged dry seeding mulch mixture.

4,339,891

PLANT SUPPORTING AND WATERING DEVICE

Ronald M. Bassett, 2107 Summerdale Ave., Chicago, Ill. 60625

Filed Oct. 6, 1980, Ser. No. 194,554
Int. Cl.³ A01G *9/04, 25/00*
U.S. Cl. 47—71 **3 Claims**



1. A supporting and watering device for a plant contained in a pot having soil therein, comprising:

A. a water reservoir stand comprising a container adapted to contain water and having:

1. an outer wall,

2. a bottom,

3. a flanged rim at the upper edge of the outer wall defining a shoulder at the inner surface of said outer wall, and

4. a plurality of gussets affixed to the outer wall and bottom of said container for supporting said outer wall, and

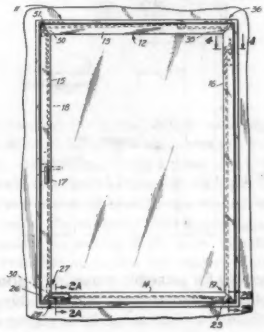
B. A disc-form cover positioned within said flanged rim and supported on said shoulder, said cover having radial ribs on the upper surface thereof for supporting said pot, and having a central aperture and a central tube vertically depending from said cover permitting a wick to pass through said tube and said cover, the lower lip of said tube being provided with recesses permitting said wick to pass thereunder and to be imbedded in the soil of the plant pot.

4,339,892

SAFETY WINDOW OF THE TILT AND TURN TYPE

Roger Ulbricht, Hicksville, and Ralph Cavalucci, New York, both of N.Y., assignors to Flour City Architectural Metals, Glen Cove, N.Y.

Filed Oct. 9, 1980, Ser. No. 195,408
Int. Cl.³ E05D *15/52*
U.S. Cl. 49—192 **8 Claims**



1. A safety window construction of the type which is shiftable between locked, vent and casement conditions of operation, said window including a fixed rectangular frame, a movable hollow rectangular sash pivotally connected thereto and carrying a pane, an operating handle on said sash shiftable between locking, vent and casement positions, drive means in said hollow sash operatively connected to said handle, a permanent pivot connection between a lower corner of said sash and frame permitting horizontal and vertical pivotal movements of said sash relative to said frame, a removable pivot connection between the other lower corner of said sash and frame and operatively associated with said drive means, permitting movement about a horizontal axis between said sash and frame in said vent condition and clearing said sash for horizontal movement relative to said frame in said casement condition, and a third pivot connection including a bearing aperture on said frame in coaxial alignment with said permanent connection, and a trunnion member formed on a fitting movably mounted on said sash and operatively connected to said drive means, said trunnion member being in axial alignment with said bearing aperture and shiftable axially thereinto responsive to movement of said handle to said casement condition, said window being characterized in that said frame includes a fixture mounted thereon having vertically spaced stop portions defining a horizontal clearance slot, said fitting including a finger member located in lateral displaced relation to and in horizontal alignment with said slot in said casement position of said handle when said sash is in a coplanar aligned condition with said frame, said finger being positioned to be shifted into said slot responsive to pivotal movements of said sash about said vertical axis away from said coplanar aligned condition, whereby vertical movements of said fitting are positively pre-

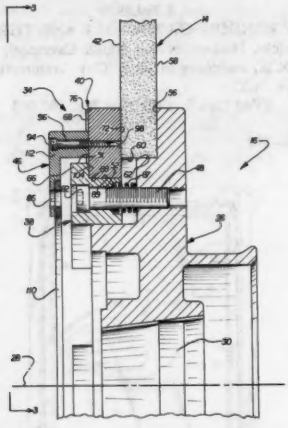
vented by interference between said finger and stop portions, thus to lock said trunnion from removal from said bearing aperture.

4,339,893

QUICK RELEASE HUB ASSEMBLY

Roger H. Fournier, Millbury, Mass., assignor to The Warner & Swasey Company, Cleveland, Ohio

Filed Oct. 9, 1980, Ser. No. 195,413
Int. Cl.[3] B24B *41/00, 45/00*
U.S. Cl. 51—168 5 Claims



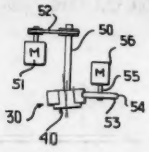
1. A hub assembly for rotatably mounting a grinding wheel having a pair of major side surfaces, said assembly comprising a rotatable hub having surface means for engaging a first major side surface of the grinding wheel, a circular clamp member disposed in a coaxial relationship with said hub, said clamp member having a plurality of radially outwardly projecting arms, fastener means for connecting said clamp member with said hub and for holding said clamp member against rotation relative to said hub, an annular flange ring circumscribing and disposed in a coaxial relationship with said clamp member, said flange ring including first surface means which defines a plurality of recesses which extend radially outwardly from a central opening in said flange ring for a distance sufficient to enable said flange ring to be moved axially outwardly from said clamp member when said arms are aligned with said recesess, said flange ring including second surface means which defines a plurality of clamp surfaces which are disposed on a radially extending and axially outer side portion of said flange ring and are disposed between adjacent recesses in said flange ring, said flange ring including third surface means for defining a radially extending and axially inner side portion of said flange ring which is adapted to engage a second major side surface of the grinding wheel, said flange ring being rotatable relative to said hub and clamp member between a retaining position and a release position, said radially extending arms on said clamp member being disposed in abutting engagement with said clamp surfaces and said fastener means being effective to press said clamp member against said flange ring to thereby press said third surface means against the second major side surface of the grinding wheel when said flange ring is in the retaining position, said radially extending arms on said clamp member being disposed in alignment with the recesses in said flange ring when said flange ring is in the release position to thereby enable said flange ring to be moved axially outwardly from the grinding wheel.

4,339,894

CONVOLUTED SHIRRING WHEEL

Alfred D. Story, and Dixon R. Asquith, both of Danville, Ill., assignors to Teepak, Inc., Chicago, Ill.

Filed Nov. 13, 1979, Ser. No. 93,338
Int. Cl.[3] A22C *11/00;* B24B *1/00*
U.S. Cl. 51—281 R 19 Claims



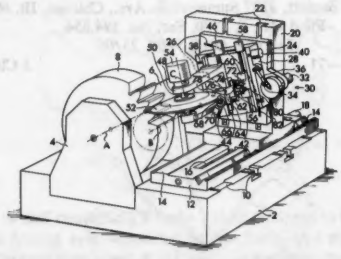
15. A method of forming a shirring wheel, said method comprising the steps of providing a wheel blank having a plurality of circumferentially spaced radially projecting lugs and a hub receiving bore, providing a special hub having a wheel mounting surface concentric about a first axis and a shaft receiving bore having an axis tilted relative to said first axis, mounting said wheel blank on said hub, and machining shirring surfaces on said lugs in a customary manner.

4,339,895

METHOD OF GRINDING GEAR TEETH FLANKS

Daniel A. Fivian, Horgen, Switzerland, assignor to Maag Gear-Wheel & Machine Co. Ltd., Zurich, Switzerland

Filed Aug. 14, 1979, Ser. No. 66,443
Claims priority, application Switzerland, Aug. 18, 1978, 8774/78
Int. Cl.[3] B24B *1/00, 9/00*
U.S. Cl. 51—287 8 Claims



1. A method of grinding tooth flanks upon a gear grinding machine comprising a workpiece support and a tool base relatively movable with respect to one another, a grinding wheel support pivotably mounted at the tool base for pivotal movement about a pivot axis, a grinding wheel mounted to be rotatably drivable at said grinding wheel support, said grinding wheel having an axis of rotation arranged transversely with respect to said pivot axis, pivot drive means for connecting said grinding wheel support with said tool base, said pivot drive means enabling, during grinding of a tooth flank, random changes of the grinding-angle of attack between the grinding wheel and the tooth flank within predetermined limits, and gearing means for to-and-fro partial generating movements between the tooth flank and the grinding wheel, which method comprises the steps of:

increasing the grinding-angle of attack along the path from the tooth root to the intermediate region of the tooth flank; and

increasing the grinding-angle of attack also along the path

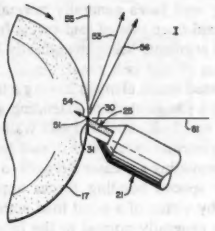
from the tooth head to the intermediate region of the tooth flank and at that location said grinding angle of attack reaches its maximum.

4,339,896

ABRASIVE COMPACT DRESSING TOOLS, TOOL FABRICATION METHODS FOR DRESSING A GRINDING WHEEL WITH SUCH TOOLS

Mahlon D. Dennis, Columbus, Ohio, and Frank R. Skinner, St. Joseph, Mich., assignors to General Electric Company, Worthington, Ohio

Continuation-in-part of Ser. No. 805,759, Jun. 13, 1977, abandoned. This application May 15, 1978, Ser. No. 906,288
Int. Cl.³ B24D 17/00
U.S. Cl. 51—298 13 Claims



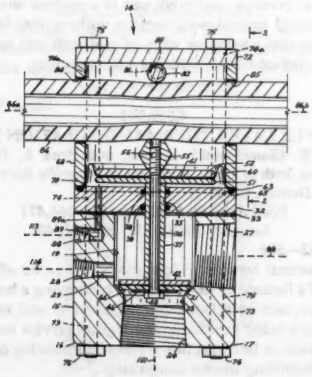
1. A method for dressing a grinding wheel comprising the steps of rotating said wheel and engaging the periphery of the rotating wheel with a dressing tool having a tip which is a composite compact disposed at a positive back rake angle of between 5 and 30 degrees.

4,339,897

SANDBLASTING METHODS AND APPARATUS

Robert E. Thompson, Houston, and Richard P. McNinney, Richmond, both of Tex., assignors to Schmidt Manufacturing, Inc., Houston, Tex.

Continuation-in-part of Ser. No. 92,199, Nov. 7, 1979, abandoned. This application Nov. 5, 1980, Ser. No. 204,345
Int. Cl.³ B24C 7/00
U.S. Cl. 51—436 34 Claims



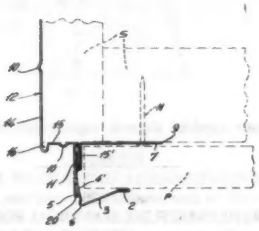
1. Sandblast control valve, comprising valve body means having a valve chamber therein, a fluid outlet passage through said body means from said chamber, a fluid inlet passage through said body means to said chamber, a valve seat around the inner end of said fluid outlet passage, first valve means within said chamber movable between a closed position against said seat and an opened position away from said seat, gas operated actuating means outside of said chamber for opening and closing said first valve means, and second valve means comprising elastomeric tube means extending through said body means which is pinched to close by said actuating means when said actuating means is moved to open said first valve means and which is released to open when said actuating means is moved to close said first valve means.

4,339,898

COMBINATION FASCIA AND J-TRIM

Carold Pichette, 163, rue de l'Eglise, Chateau-Richer, Prov. of Quebec, Canada (GOA 1NO)

Filed Sep. 16, 1980, Ser. No. 187,950
Int. Cl.³ E04B 7/00
U.S. Cl. 52—94 2 Claims



1. A combination fascia and J-trim moulding comprising, firstly, a J-trim moulding in two pieces, a first piece and a second piece, each piece having a generally L-shaped profile and being made of a flexible material; each piece comprising a first branch and a second branch; the second branches being attachable one to the other by overlapping attaching means; the first branches projecting in the same direction relative to the second branches such that the said two pieces when attached define a U-shaped profile; the first branch of the first piece being provided with a longitudinally extending deep slot; the said second branch of the said first piece and said deep slot defining a longitudinally extending space; the top portion of the said second branch of the said second piece being adapted to be slid into said longitudinally extending space up to a limit locking position; comprising, secondly, a fascia moulding having a vertical portion and a horizontal portion wherein the free edge of said horizontal portion is provided with a downwardly extending flange; said flange being adapted to slide in said deep slot up to a final secured position; said second branches of said two pieces serving as joining branches, and said first branch of said first piece serving as an attaching branch and said first branch of said second piece serving as a covering branch.

4,339,899

ADJUSTABLE CONNECTOR FOR COUPLING TOWER LEG TO FOUNDATION SUPPORT ANCHOR

William A. Klenk, Missouri City; Albert B. Atkinson, Houston, both of Tex., and Donald E. Bobbitt, Centralia, Mo., assignors to A. B. Chance Company, Centralia, Mo.

Filed Oct. 28, 1980, Ser. No. 201,593
Int. Cl.³ E02D 5/74
U.S. Cl. 52—157 24 Claims

1. A support assembly for a tower leg comprising:

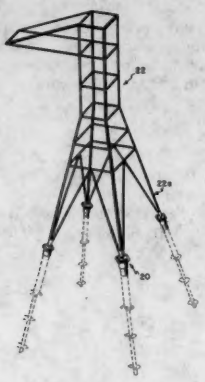
a screw anchor adapted to be rotatively driven into the ground at a preselected location and having an upper support extremity;

a connector unit located in adjustable disposition relative to the screw anchor before being fixedly secured thereto;

coupling means for joining the connector unit to the tower leg for support of the latter by the screw anchor; and

means for fixedly securing the connector unit to the support

extremity of the screw anchor after the connector means has been moved into disposition bringing the connector



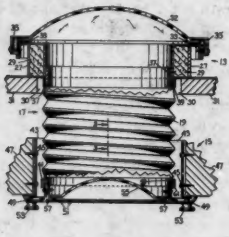
unit into required aligned, supporting relationship to the leg.

4,339,900

SKY-LIGHT STRUCTURE HAVING A FLEXIBLE-TUBE SHAFT

William T. Freeman, RR-4, Springfield, Ill. 62707

Filed Sep. 29, 1980, Ser. No. 191,380
Int. Cl.[3] E04B *7/18;* E04D *13/03*
U.S. Cl. 52—200 10 Claims



1. In a skylight installation having a roof-installed closure for a light-transmitting opening therein, and a ceiling-installed light-transmitting window, the improvement comprising: a flexible-walled tube enclosing the space between said closure and said window to provide light-channeling through, thermal insulation for, and dust- and insect-exclusion from, said space.

4,339,901

SYSTEM FOR IMPROVING HEAT INSULATING CHARACTERISTICS OF A BUILDING WALL STRUCTURE

S. Eugene Hubbard, Niles, Mich., assignor to Kawneer Company, Inc., Niles, Mich.

Continuation of Ser. No. 963,187, Nov. 24, 1978, abandoned.
This application Jan. 16, 1981, Ser. No. 225,771
Int. Cl.[3] E06B *3/26*
U.S. Cl. 52—202 17 Claims

1. A separate, self-contained, discrete insulating sash for use with

a building wall structure of the type including at least one pair of generally parallel, spaced apart, opposed, facing, undifferentiated, relatively flat fixed wall surfaces having spaced apart first and second longitudinal edges and a second wall surface extending generally normal to one of said fixed wall surfaces adjacent a first longitudinal edge thereof toward a first longitudinal edge of the opposite fixed wall surface, said fixed wall surfaces and said second wall surface defining a recess in said wall structure having an open side adjacent said second longitudinal edges of said fixed wall surfaces;

said insulating sash adapted for mounting in said recess between said first and second edges of said fixed wall surfaces, said sash including a sash panel having one side facing said second surface of said wall structure and an opposite side facing toward an open side of said recess;

a frame around a peripheral edge portion of said sash panel including at least one pair of elongated frame elements parallel and spaced between said first and second longitudinal edges of said fixed wall surfaces, said frame elements including a pair of spaced apart, wall segments having opposing wall faces generally normal to and projecting toward said open side of said recess from said sash panel, said wall segments being structurally bonded to the adjacent edges of said sash panel;

each elongated frame element having a transverse cross-section with a flange element extending generally parallel to a face of said sash panel and said wall segments extending generally normal to said face of said sash panel, said cross-section providing a greater strength to resist against longitudinally spaced bending forces applied to said frame element by virtue of a wind load acting on said sash in a direction generally normal to the face of said sash panel than against applied forces acting on said sash in a direction generally parallel of a face of said sash panel; and

a pair of pivot pins mounted on said respective wall segments of said frame elements adapted to engage said respective adjacent fixed wall surfaces of said building wall structure for pivotally supporting said sash in said recess for movement about a pivot axis extending through said opposing wall faces of said frame elements between said fixed wall surfaces, said axis aligned in spaced apart, parallel relation to said opposite side of said sash panel toward said open side of said recess and adjacent a transverse edge of said sash extending between said frame elements and adjacent to said second wall surface of said building wall structure, said pivot axis being spaced a radial distance from said transverse edge less than the radial distance between said pivot axis and said second wall surface of said recess in said building wall structure to permit said sash to pivot on said pivot axis to a position sloping away from said second wall surface without interference between said transverse edge of said sash and said second wall surface of said building wall structure.

4,339,902

MULTIPLE LAYER THERMAL INSULATION DEVICE

Anthony E. Cimochowski, Sedalia, and Brad A. Heffelmire, Littleton, both of Colo., assignors to Manville Service Corporation, Denver, Colo.

Filed Jun. 30, 1980, Ser. No. 164,477
Int. Cl.[3] E04B *1/38;* E04C *1/40*
U.S. Cl. 52—506 4 Claims

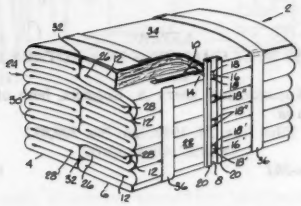
1. A thermal insulating device adapted to be affixed to a surface of a furnace or like structure and having a hot face and a cold face, said cold face being adjacent to said surface and said hot face being exposed to the highest service temperature in the furnace or like structure when said insulating device is in use, said insulating device comprising:

(a) a first insulation layer comprised of a first serpentine folded fibrous insulating blanket defining a first plurality of inner and outer folds, said first inner folds being nearest said cold face and said first outer folds being nearest said hot faces;

(b) attachment means secured to said first insulation layer and adapted to affix said device to said surface of said

furnace or like structure, said first insulation layer thereby providing the cold face of said device;

(c) a second insulation layer comprised of a second serpentine folded fibrous insulating blanket defining a second plurality of inner and outer folds, said second inner folds being nearest the cold face and said second outer folds being nearest said hot face, some of the inner folds of said second insulation layer abutting the outer folds of said first insulation layer, said second insulation layer thereby providing the hot face of said device; and



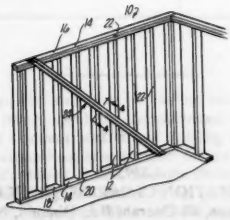
(d) at least one of the inner folds of said second serpentine folded fibrous insulating blanket extending from said second insulation layer into said first insulation layer and being disposed within one of the inner folds of said first serpentine folded thermal insulating blanket to a depth sufficient to retain said first insulation layer and said second insulation layer in abutting relationship without the need for additional mechanical connections therebetween.

4,339,903

METAL CROSS SUPPORT

Richard J. Menge, 4103 Anchor Dr., Brighton, Mich. 48116

Continuation of Ser. No. 862,038, Dec. 19, 1977, abandoned.
This application Jun. 13, 1979, Ser. No. 48,274
Int. Cl.³ E04C *2/38*
U.S. Cl. 52—657 **8 Claims**



1. In a wooden truss structure or the like for supporting structural elements the improvement which comprises:

a plurality of spaced wooden truss elements,

a wooden stringer element extending across at least one end of said truss element and generally perpendicular thereto,

a narrow transversely extending channel in each truss element, said channels being in alignment with each other,

a metal support strip having a base leg which is positioned in said channels,

means for securing said base leg in said channel,

means for bending an end of said strip in the direction of said base leg, said means for bending comprising a flat overlapping portion formed at at least one end thereof by removal of a segment of said base leg from said at least one end so that one surface of said overlapping portion lies in a substantially horizontal plane and flatly abuts against a substantially horizontal surface of said stringer element, and

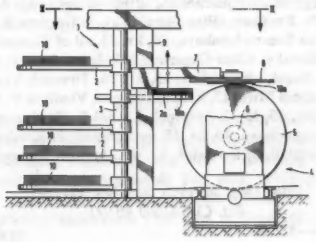
means for attaching said overlapping portion to said stringer element.

4,339,904

ROLL PACKAGING ARRANGEMENT

Pauli Koutonen, and Lars-Erik Alanco, both of Järvenpää, Finland, assignors to Oy Wartsila Ab, Helsinki, Finland

Filed Oct. 29, 1979, Ser. No. 88,956
Claims priority, application Finland, Nov. 3, 1978, 783352
Int. Cl.³ B65B *61/22*
U.S. Cl. 53—137 **7 Claims**



2. A packaging arrangement for selecting and applying roll headers or corresponding package units onto horizontally oriented rolls of different diameter, which arrangement comprises;

a storage unit for said headers or the like;

an application unit including a horizontally movable and vertically oriented press member;

a transmission member provided with catch means for transmitting a selected header from said storage unit to said press member;

said storage unit comprising a plurality of basically horizontally oriented movable storage levels, one for each header size, carrying headers in an exactly defined position;

means for moving said storage levels from a storage position to a working position for delivering headers of a desired size;

means for moving said transmission member to a position corresponding to the working position of a selected storage level to catch a selected header, by means of said catch means, from said selected storage level brought to said working position, as well as for moving said transmis-

sion member to a basically vertical header delivery position adjacent said press member for transmitting thereby said selected header from said selected storage level to said press member; and

each of said headers having an edge portion to be placed at the bottom of said roll, whereby the exact location of the header on each storage level is determined on the basis of the location of said edge portion of said headers with respect to a movement pattern of said storage levels as well as of said transmission members, and, in particular, with respect to a lower edge of said transmission member when being in said vertical header delivery position, said edge portion of the different size headers being always in the same position on each of said storage levels and on said transmission member, thereby ensuring proper positioning of any selected header at the end face of said roll, irrespective of the size of the roll to be headed and the corresponding size of the selected header.

4,339,905

Patent Not Issued For This Number

4,339,906

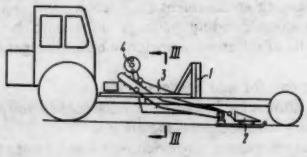
VEGETABLE HARVESTING MACHINE

Valentin P. Chichkin, ulitsa Mira, 12, kv. 2; Efraim A. Shpigel, ulitsa Mira, 13, kv. 36; Gennady P. Gokin, ulitsa Mira, 13, kv. 20; Georgy E. Matjuschenko, ulitsa Junosti, 12/2, kv. 33; Nikolai N. Kurakov, ulitsa Mira, 7, kv. 1; Grigory B. Rabinovich, ulitsa Krasnodonskaya, 46, kv. 21, all of Tiraspol; Sergei A. Samoilovsky, ulitsa Gagarina, 225/1, kv. 14, selo Sukleya; Boris S. Angel, ulitsa Mira, 13, kv. 26, Tiraspol; Vladimir S. Ilienko, ulitsa Mira, 13, kv. 17, Tiraspol; Vladimir P. Miterev, ulitsa Mira, 19, kv. 2, Tiraspol; Leonid S. Zemiyanov, ulitsa Solnechnogorskaya, 10, kv. 15, and Anatoly F. Krutkov, ulitsa S. Kovalevskoi, 2, korpus 4, kv. 40., both of Moscow, all of U.S.S.R.

Filed Dec. 30, 1980, Ser. No. 221,385

Int. Cl.³ A01D *46/00*

U.S. Cl. 56—327 R **5 Claims**



1. A vegetable harvesting machine comprising:

a frame;

lifters designed for aligning the plants being harvested and mounted on said frame;

two walkers obliquely mounted on said frame and set some distance apart;

an eccentric drive designed to oscillate said walkers in antiphase in a vertical plane about a pivot point on the lifter for the purpose of detaching fruits from the plants guided onto the walkers by said lifters;

said walkers being attached to said lifters at one end and to said eccentric drive at the other end;

a system of conveyors for delivering the removed fruits outside the machine.

4,339,907

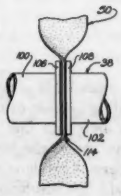
ENDLESS BELT CHANGING IN A ROTARY CROP BALER

Arnold F. Kopaska, and Larry A. Kopaska, both of Guthrie Center, Iowa

Filed Nov. 24, 1980, Ser. No. 209,822

Int. Cl.³ A01D *39/00*

U.S. Cl. 56—341 **15 Claims**



1. In a farm implement for making round bales from crop material:

a pair of horizontally spaced uprights;

means holding said uprights a fixed distance apart;

a plurality of transverse, horizontal elements rotatably supported by the uprights and arranged in mutually spaced parallelism,

each of said elements being coupled with said uprights in a manner to present a normally uninterrupted, continuous span across and between the uprights;

a series of endless, flexible members trained around the elements in engagement therewith; and

means associated with each element for temporarily interrupting said span and presenting a clearance for the members to permit replacement of the latter.

4,339,908

VEGETATION CLEARING DEVICES

Richard M. Johnson, 48 Onerahi Rd., Onerahi, New Zealand

Continuation of Ser. No. 59,772, Jul. 23, 1979, abandoned. This application Sep. 10, 1980, Ser. No. 185,801

Int. Cl.³ A01D *49/00*

U.S. Cl. 56—503 **9 Claims**

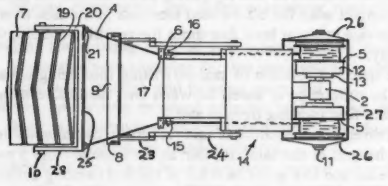
1. A gravity rolling arrangement for use in clearing vegetation on slopes adapted to be mounted on a vehicle comprising:

a free-moving heavy roller means for crushing vegetation by rolling down a slope under the force of gravity;

a yoke, between whose arms the axle of said roller means is rotatably mounted;

at least two independently controllable winch drums;

at least one control line mounted around each of said winch drums at one end and removably fastened at the other end



to said yoke, at least one control line being connected to each side of said yoke; and

each of said control lines passing through a fair lead system located between said winch drum and said yoke.

4,339,909

ROTARY QUADRANTS OF CABLE-MAKING MACHINES

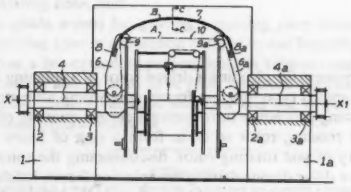
Jean Godderidge, 11 boulevard H. Barbusse, 78800 Houilles, France

Filed Jul. 7, 1980, Ser. No. 166,409

Claims priority, application France, Jul. 9, 1979, 79 17786

Int. Cl.³ D07B *3/12*; D01H *7/24, 7/86*

U.S. Cl. 57—58.52 **3 Claims**



1. In a double-twist stranding or cabling machine; the improvement of a rotary quadrant characterized by elimination thereon of prior conventional strand guiding members, said rotary quadrant comprising spaced-apart driven support members mounted for rotation in said machine about the same axis for engagably receiving the strand being processed, and an elongate incurved supple member without strand guides or enclosed conduits therein and extending between and mounted on opposite end to said respective support members, so that the strand being processed is stretched between said support members out of contact with said supple member when said machine is not operating and said rotary quadrant is at rest and the strand being processed is in contact with said supple member under the influence of centrifugal force when said machine is operating and said rotary quadrant is rotating.

4,339,910

OPEN-END SPINNING MACHINE

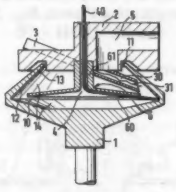
Ramadan A. Ali, Reutlingen; Heinz Muller, Metzingen; Karl-Heinz Lehmann, Altenriet; Peter Artzt, Reutlingen, and Anton Schenek, Bempfingen, all of Fed. Rep. of Germany, assignors to Schubert & Salzer, Ingolstadt, Fed. Rep. of Germany

Filed Jul. 25, 1980, Ser. No. 172,297

Claims priority, application Fed. Rep. of Germany, Aug. 3, 1979, 2931567

Int. Cl.³ D01H *7/882*

U.S. Cl. 57—411 **19 Claims**



1. An open-end spinning apparatus with a spinning rotor having an interior wall, a yarn takeoff channel opening and a fiber feed channel opening communicating with the interior of said spinning rotor, and a source of reduced pressure, the improvement comprising:

a suction opening (**5, 50, 51**) connected to said source of reduced pressure and being directed to said interior wall, said suction opening being positioned so that a suction air stream flowing therethrough is separated from the path of said yarn between said interior wall and said yarn takeoff channel opening and the path of fibers between said fiber feed channel opening and said interior wall.

4,339,911

OPEN-END SPINNING ROTOR CONSISTING OF A BASIC MEMBER AND A ROTOR MEMBER

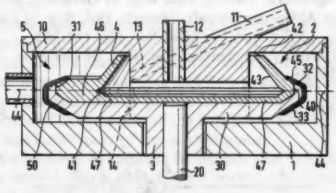
Eberhard Hofmann, Ingolstadt, Fed. Rep. of Germany, assignor to Schubert & Salzer, Ingolstadt, Fed. Rep. of Germany

Filed Sep. 17, 1980, Ser. No. 188,219

Claims priority, application Fed. Rep. of Germany, Sep. 28, 1979, 2939325

Int. Cl.³ D01H *1/135, 7/882*

U.S. Cl. 57—416 **11 Claims**



1. An open-end spinning rotor including a basic member and, a rotor member, said basic member being carried by a bearing and drive element and has a substantially radial supporting surface with a centering surface at its outer edge, said rotor member which includes a collecting surface has a centering surface which co-operates with said centering surface of said basic member comprising:

a connecting element means (**5**) engaging said rotor member

and said basic member providing a detachable connection between said basic member (3,6, 8) and said rotor member (4, 7, 9);

said connecting element means being separated from the centering surfaces of said basic member and rotor member.

4,339,912

DEVICE FOR GRIPPING YARN SUPPORTS ON REVOLVING-SPINDLE TEXTILE MACHINES

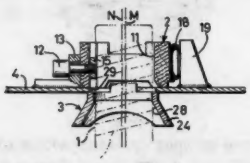
Pierre Close, Modelheim, France, assignor to Societe Alsacienne de Constructions Mecaniques de Mulhouse, Mulhouse, France

Filed Sep. 24, 1980, Ser. No. 190,271

Claims priority, application France, Sep. 28, 1979, 79 24186

Int. Cl.³ D01H *9/08*

U.S. Cl. 57—275 6 Claims



1. A device for gripping yarn supports such as bobbins, tubes, cops and the like whether full or empty on textile machines having revolving spindles for receiving supports of this type such as ring spinning frames, twisting fames, roving frames and like machines, comprising a movable supporting element on which are mounted (1) a holder comprising a deformable annular member of flexible and elastic material which can be freely engaged on the yarn support and (2) means for controlling the clamping action of the holder by causing deformation of said holder in the radial direction; wherein the movable supporting element comprises a support plate pierced by a hole providing a passageway for the upper end of a yarn support, said deformable annular member being adapted to rest on the peripheral edge portion of said hole and being fixed on said support plate at only one point of the lateral surface thereof whilst the clamping-action control means which is also mounted on said support plate is located opposite to a thrust zone of the lateral surface of the deformable annular member which is diametrically opposite to said one point.

4,339,913

DEVICE FOR SZ TWISTING OF TWIST ELEMENTS OF ELECTRIC CABLES AND WIRES

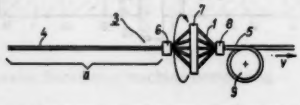
Dieter Vogelsberg, Coburg, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Munich, Fed. Rep. of Germany

Filed Apr. 16, 1980, Ser. No. 140,742

Claims priority, application Fed. Rep. of Germany, Apr. 20, 1979, 2916520

Int. Cl.³ H01B *13/04*

U.S. Cl. 57—294 5 Claims



1. In an apparatus for the SZ-twisting of twist elements of electric cables and wires to form an SZ-twisted unit, including a first twisting device comprising one or more twisting means which are arranged between a first and a last twisting point and revolve in a stepwise alternating manner, and a storage device for the twist elements twisted at least one first time, the storage device having a very large storage capacity, the improvement comprising:

a second twisting device in series with the first twisting device and including, a retwisting disc, adapted to be driven with alternating direction of rotation, through which the SZ-twisted twist elements twisted in the first twisting device pass, and at least one twisting closer point associated with said retwisting disc;

the free distance of said retwisting disc from the last point of contact with the SZ-twisted elements in the first twisting device being at least five times the resulting SZ length of lay,

the speed of rotation of said retwisting disc being equal to the difference in speed between two successive steps of said first twisting device; and

the direction of rotation of said retwisting disc adapted to be changed in the same rhythm as the change from a speed reduction to a speed increase of the first twisting device or vice versa.

4,339,914

METHOD AND APPARATUS FOR CLEANING AN OPEN-END SPINNING ROTOR

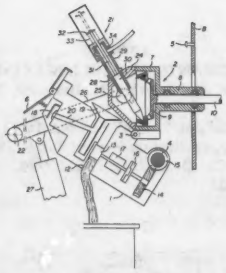
Hermann Pfeifer, Moillesulaz, Switzerland, assignor to Officine Savio, S.p.A., Pordenone, Italy

Filed Jun. 26, 1980, Ser. No. 163,104

Claims priority, application Switzerland, Jun. 26, 1979, 5935/79

Int. Cl.³ D01H *11/00*

U.S. Cl. 57—302 2 Claims



1. A process for cleaning a driven rotor of a spinning unit in an open-ended type spinning frame, comprising after stopping the spinning procedure introducing a certain quantity of fibers into the rotating rotor so as to form a ring of fibers at the periphery of said rotating rotor, disconnecting the rotor from a positive drive device driving the spinning frame, holding the ring of fibers at an angle against the rotor until the friction between said ring of fibers and the rotor halts the rotor, freeing said ring of fibers from contact with said rotor and discharging said ring of fibers together with the detached impurities lying in said rotor.

4,339,915

APPARATUS FOR FALSE TWISTING YARN

Peter Dammann; Heinz Schippers, and Karl Bauer, all of Remscheid-Lennep, Fed. Rep. of Germany, assignors to Barmag Barmer Maschinenfabrik, Remscheid, Fed. Rep. of Germany

Filed Jul. 14, 1980, Ser. No. 168,734

Claims priority, application Fed. Rep. of Germany, Jul. 14, 1979, 2928522; Dec. 24, 1979, 2952305; Mar. 4, 1980, 3008233; Apr. 11, 1980, 3013948

Int. Cl.³ D02G *1/08;* D01H *7/92*

U.S. Cl. 57—339 28 Claims

1. A yarn false twisting apparatus comprising

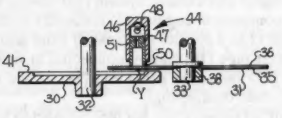
a pair of twist imparting members, at least one of said members comprising a relatively thin circular disc having opposite flat faces, with one of said faces defining a yarn engaging friction surface, and with said disc being readily flexible in a direction perpendicular to said faces, the other of said members having a generally flat yarn engaging friction surface,

means mounting said members for rotational movement wherein portions of the respective yarn engaging friction surfaces are disposed in opposing, substantially non-contacting relationship and define a twisting zone therebetween,

means for rotating each of said members such that their respective yarn engaging friction surfaces run in different directions through said twisting zone, and

means operatively mounted adjacent said circular disc for biasing said disc toward the other member at said twisting zone and during the rotation thereof,

whereby a yarn may be continuously moved through said twisting zone while having twist imparted thereto by frictional contact between the yarn and the respective



opposed friction surfaces resulting from the force exerted by the biasing means, and while the yarn engaging friction surfaces remain in substantially non-contacting relationship with respect to each other.

19. A yarn false twisting apparatus comprising

a pair of twist imparting discs, with each disc having a yarn engaging friction surface on one face thereof,

means mounting said discs for rotation about parallel, spaced apart axes and such that portions of the respective yarn engaging friction surfaces are disposed in opposing, substantially non-contacting relationship and define a twisting zone therebetween,

means for rotating each of said discs in a common rotational direction and such that their respective yarn engaging friction surfaces run in different directions through said twisting zone, and

yarn guide means for guiding a moving yarn through said twisting zone in a direction parallel to and laterally spaced from a line extending perpendicularly between said axes of rotation and so as to have twist imparted thereto by frictional contact between the yarn and the respective opposed friction surfaces.

4,339,916
PNEUMATIC STARTER OVERTEMPERATURE CONTROL

Darrel W. Burch, and James P. Wojciehowski, both of Phoenix, Ariz., assignors to The Garrett Corporation, Los Angeles, Calif.

Division of Ser. No. 886,381, Mar. 13, 1978, Pat. No. 4,220,439. This application Aug. 18, 1980, Ser. No. 179,351
Int. Cl.³ F02C 7/26
U.S. Cl. 60—39.02 **1 Claim**

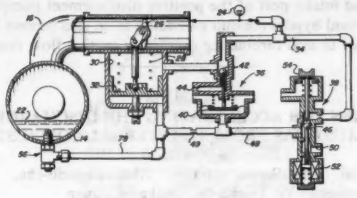
1. A method of providing automatic shutdown capabilities in an aircraft engine pneumatic starter in the event of a failure creating excessive heat within the starter, comprising the steps of:

delivering a flow of pressurized fluid to operate an actuator to open a control valve;

directing a flow of pressurized gas across said opened control valve to said starter to operate the latter;

providing a dump valve having a closed position blocking communication between the actuator and an exhaust port to permit normal starter operation;

continuously urging the dump valve toward an open position connecting the actuator with the exhaust port to close



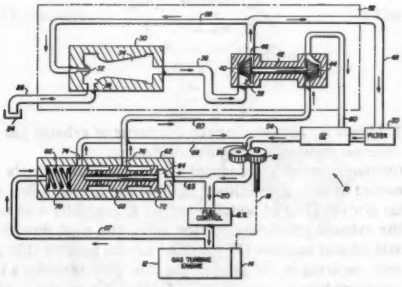
said control valve and thereby interrupt the flow of pressurized gas and shut down starter operation; and

securing the dump valve in its closed position by a heat sensitive fusible material immersed in the lubricating oil of the starter, said fusible material melting whenever said lubricating oil exceeds a preselected temperature to permit the dump valve to move to its open position and automatically shut down starter operation.

4,339,917
FUEL DELIVERY SYSTEM AND METHOD

Charles H. LaGrone, Tempe, Ariz., assignor to The Garrett Corporation, Los Angeles, Calif.

Filed Jun. 13, 1979, Ser. No. 48,288
Int. Cl.³ F02C 9/38
U.S. Cl. 60—39.28 R **12 Claims**



1. A fuel delivery system for a gas turbine engine comprising:

a fuel tank:

an ejector pump having nozzle means, an intake port communicating with said fuel tank, and an exhaust port;

first and second pumps disposed serially downstream of said ejector pump for pumping fuel flow to said engine, each of said first and second pumps having intake and exhaust ports, said exhaust port of the first pump feeding fuel flow to said intake port of the second pump;

a turbine driven by exhaust flow from said exhaust port of the second pump, said turbine operatively connected to mechanically driven said first pump;

a pressure boost feedback conduit delivering flow from said exhaust port of the first pump to said nozzle means of the ejector pump;

said second pump being a positive displacement pump;

fuel control means disposed downstream of said positive displacement pump for controlling fuel flow to said engine;

a pressure differential control valve responsive to pressure upstream and downstream of said fuel control means, said

control valve operable to bypass excess exhaust flow from said exhaust port of the positive displacement pump back to said intake port to maintain a substantially constant pressure differential across said fuel control means, said control valve including first and second bypass ports;

a first bypass conduit extending from said first bypass port to said intake port of the positive displacement pump; and

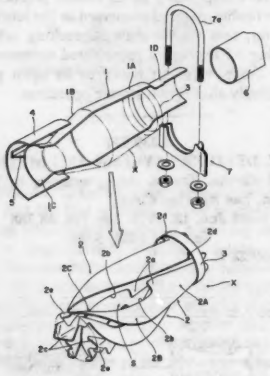
a second bypass conduit extending from said second bypass port to said turbine for delivering motive flow thereto.

4,339,918

MEANS FOR ACCELERATING THE DISCHARGE OF EXHAUST GAS FROM AN INTERNAL COMBUSTION ENGINE

Hirokuni Michikawa, 1-115, Minamieguchi-cho, Higashiyodogawa-ku, Osaka-shi, Osaka-fu, Japan

Filed Sep. 11, 1980, Ser. No. 186,035
Int. Cl.³ F02B *35/00*
U.S. Cl. 60—316 **7 Claims**



1. Means for accelerating the discharge of exhaust gas from an internal combustion engine comprising:

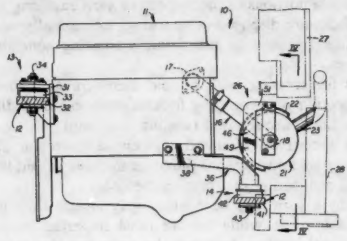
a tubular member (1) adapted to be communicatingly connected to an engine exhaust pipe (6) and having a first tubular portion (1A) of which diameter is gradually widened in the exhaust gas flow direction along the axial direction of said tubular member (1), a second tubular portion (1B) gradually tapering in the exhaust gas flow direction and a trumpet-shape tubular portion (1C) of which diameter is suddenly widened from the smallest diameter portion of said second tubular portion (1B); and a plurality of circumferentially disposed spiral blades (2) made of thin plate for spirally flowing and guiding exhaust gas and defining a space adjacent the axial center of said tubular member (1), said spiral blade (2) disposed in said tubular member (1) between said first tubular portion (1A) and said second tubular portion (1B) thereof, each of said spiral blades (2) having an arcuate or substantially arcuate section in the widthwise direction of the spiral blade plate at right angle to the spiral direction thereof, each of said spiral blades (2) having, at that part of its inner edge located at the slightly upstream side of exhaust gas flow with respect to the largest portion of said first tubular portion (1A), a tongue piece (*2a*) for guiding exhaust gas flowing toward said part, to the exhaust gas downstream side in the radially external direction of said tubular member (1), each of said spiral blades (2) further having, at its end adjacent to the smallest diameter portion of said second tubular portion (1B), a steeply inclined tongue piece (*2c*) for imparting a rapid swirling force to spirally flowing exhaust gas, thereby to guide the exhaust gas into said trumpet-shape tubular portion (1C).

4,339,919

FLEXIBLE MUFFLER MOUNTING

Lancelot A. Jobling, Mentor; Charles J. Sabec, Pepper Pike, and Ronald C. Stump, Mentor, all of Ohio, assignors to Towmotor Corporation, Mentor, Ohio

Filed Mar. 24, 1980, Ser. No. 135,961
Int. Cl.³ F01N *7/08*
U.S. Cl. 60—322 **9 Claims**



1. In an engine and exhaust system (10) having a frame (12), an internal combustion engine (11) resiliently mounted (13,14) on said frame (12), a muffler (21) spaced from said engine (11), a rigid exhaust pipe (16) rigidly connected at one end (17) to said engine (11) and at the other end (19) to said muffler (21), the improvement comprising:

a rigid muffler support bracket (46) connected to said engine (11),

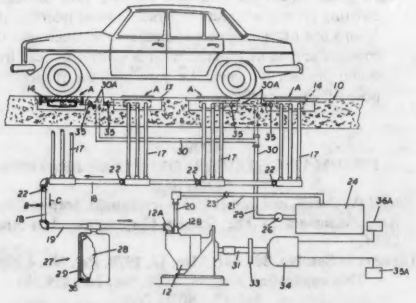
a flexible, generally vertical, metal hanger (52) having a first end (54), and a second end (58) and being connected at the first end (54) to said muffler support bracket (46) and at the second end (58) to said muffler (21), said second end (58) being connected to said muffler (21) at a location (24) on said muffler (21) spaced a substantial distance from the connection of said exhaust pipe (16) to said muffler (21).

4,339,920

METHOD AND APPARATUS UTILIZING THE WEIGHT OF MOVING TRAFFIC TO PRODUCE USEFUL WORK

Wayne P. Le Van, 310 E. 44th St., New York, N.Y. 10017

Filed Jun. 27, 1980, Ser. No. 163,936
Int. Cl.³ F03G *5/00*
U.S. Cl. 60—533 **3 Claims**



1. An apparatus for translating the energy of moving traffic into useful work comprising:

a plurality of chamber, each having a fluid inlet and outlet, and each having a flexible wall portion disposed in the path of moving traffic at spaced apart intervals,

a circuit means,

each of said, chambers being connected into communication with said circuit means,

said circuit means defining a closed circuit, said chambers and connected circuit means being filled with a non-compressible fluid,

said circuit means including a reservoir for containing a supply of said non-compressible fluid, means connecting said reservoir in circuit with each of said chambers,

a fluid motor,

said motor having a fluid inlet and a fluit outlet connected in circuit to said closed circuit, said motor outlet being connected in communication with said reservoir,

unidirectional flow control means disposed in said closed circuit for directing the flow of fluid through said circuit in a unidirectional manner from each of said respective chambers, and toward and through said fluid motor,

rectifying means connected in said circuit between the respective outlets of said chambers and the inlet to said motor whereby said rectifying means functions to rectify intermittent displacement of the fluid from said chambers to a generally uniform flow through said motor,

said rectifying means including a flexible container to define an expandible chamber,

said expandible chamber being connected in communication with said circuit means,

a rigid housing encasing said flexible container in spaced relationship thereto so as to define a closed air space therebetween so that said rectifying means functions as a self pressurizing accumulator for said circuit whereby the intermittent displacement of the non-compressible fluid in said chamber is rectified into a generally uniform fluid flow through said motor, said housing including a frame disposed in the path of moving traffic defining a base plate for supporting each of said chambers, a hit plate disposed over each of said flexible chambers for movement toward and away from its respective base plate whereby said chamber is compressed by the weight of the moving traffic passing thereover to affect displacement of fluid therefrom, one of said plates having an inclined surface disposed contiguous to said surface, said inclined surface being inclined in the direction of said outlet so that when said surface is displaced relative to said chamber, the fluid therein is positively displaced in the direction of said outlet, retainer means for movably retaining said hit plate to said frame, and means adding make-up fluid to said circuit,

and an electrical generator operatively connected to said fluid motor to be driven thereby.

4,339,921

BRAKE BOOSTER FOR AN AUTOMOTIVE VEHICLE

Johannes Schanz, Bad Homburg, Fed. Rep. of Germany, assignor to ITT Industries, Inc., New York, N.Y.

Filed Jun. 18, 1979, Ser. No. 49,706

Claims priority, application Fed. Rep. of Germany, Jul. 10, 1978, 2830262

Int. Cl.³ B60T *13/00*

U.S. Cl. 60—547 R **6 Claims**

1. A brake booster for an automotive vehicle utilizing a pressure differential between a vacuum and atmospheric pressure comprising:

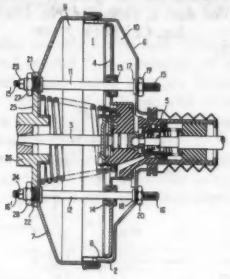
a vacuum casing having a control valve actuated by a brake pedal secured to one end wall thereof, a master cylinder push rod guided axially of said casing extending through the other end wall thereof and at least one movable wall disposed therein dividing said casing into a vacuum chamber and a working chamber and acting on said push rod;

two bolts extending through said casing and said movable wall parallel to said push rod and connected to said one end wall and said other end wall to prevent deformation of said casing due to operating forces acting thereon; and

two slide seals disposed in said movable wall each embracing a different one of said two bolts to prevent leaks between said vacuum and working chambers and to enable said movable wall to slide on said bolts;

said bolts being bolted to said one end wall and said other end wall;

an end of each of said bolts adjacent said other end wall extending through an associated hollow screw secured to



and extending through said other end wall in a sealed relationship, each of said bolts being sealed relative to the interior of said associated hollow screw to enable an adjustment of the axial length of said casing.

4,339,922

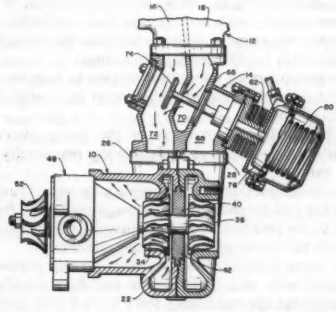
DUAL TURBINE TURBO-SUPERCHARGER

Bernard J. Navarro, 3252 E. Chevy Chase, Glendale, Calif. 91206

Filed Jul. 9, 1979, Ser. No. 55,653

Int. Cl.³ F02B *37/12*

U.S. Cl. 60—602 **1 Claim**



1. Turbocharger apparatus for use with a piston/cylinder internal combustion engine having an intake manifold and two totally discrete exhaust manifolds connected to and fed by respective two discrete groups of pistons/cylinders, comprising:

a turbocharger having a first turbine, a second turbine and a compressor wheel connected by a common drive-train;

first conduit means for connecting one of the exhaust manifolds to said first turbine;

second conduit means for connecting the other of the exhaust manifolds to said second turbine;

valving means communicating with said first and second conduit means for directing exhaust gas flow selectively from both of said conduit means to said first turbine or alternatively directing flow from said first conduit means to said first turbine and directing flow from said second conduit means to said second turbine; and

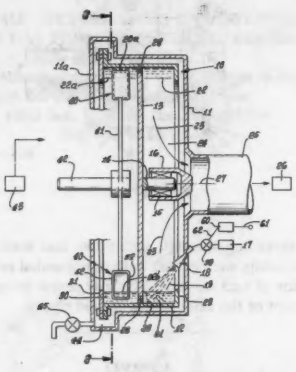
third conduit means for connecting the output of said compressor wheel to the intake manifold of the engine.

4,339,923

SCOOP FOR REMOVING FLUID FROM ROTATING SURFACE OF TWO-PHASE REACTION TURBINE

Lance G. Hays, Los Angeles; William E. Amend, Rolling Hills Estates, and Gustave J. Hokenson, Los Angeles, all of Calif., assignors to Biphase Energy Systems, Santa Monica, Calif.

Filed Apr. 1, 1980, Ser. No. 136,255
Int. Cl.³ F01K 25/06
U.S. Cl. 60—673 12 Claims



1. In combination with a wheel providing a rotating peripheral surface with an annular body of liquid supported on said surface and rotating with the wheel, the improvement comprising

(a) a scoop projecting partially into said rotating annular body of liquid,

(b) means mounting the scoop for rotation about an axis and concentrically with said annular body of liquid, and in a forward direction in response to force transmission to the scoop from liquid entering the scoop,

(c) the scoop having an interior surface to turn the entering liquid for discharge from the scoop in a relatively rearward direction,

(d) substantially, the entirety of the scoop interior rearwardly of said interior surface being rearwardly open to the exterior,

(e) the scoop interior surface having a lip and a "run-in" first portion that extends generally tangentially and flatly relative to the entering liquid and forwardly from said lip past which the liquid relatively enters the scoop,

(f) the scoop interior surface having a second portion which merges with said first portion and then locally curves throughout approximately 180°,

(g) the scoop interior surface having a "run-out" third portion which extends flatly and substantially parallel to said first portion, and merges with said curved second portion at a location closer to said axis than said first portion, said third portion having a lip past which the liquid relatively leaves the scoop in said rearward direction,

(h) the scoop having laterally opposed, generally parallel side walls extending at substantially 90° to said first and third portions of the scoop interior surface.

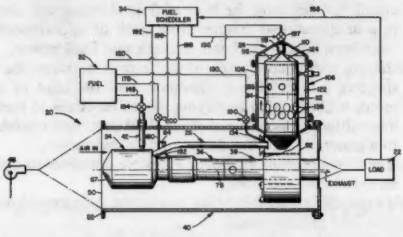
4,339,924

COMBUSTION SYSTEMS

David J. White, San Diego, and Peter B. Roberts, Encinitas, both of Calif., assignors to Solar Turbines Incorporated, San Diego, Calif.

Filed Aug. 2, 1978, Ser. No. 930,249
Int. Cl.³ F23R 3/30, 3/34, 3/44
U.S. Cl. 60—733 9 Claims

1. Combustion apparatus of the premix/fuel lean type, comprising: a main combustor means having a primary combustion zone therein; premixer means for forming a mixture of fuel and primary air having an equivalence ratio of less than unity and for so introducing jets of said mixture into said main combustor means at intervals therearound and toward the axial centerline of said main combustor means at the upstream end thereof as to effect recirculation of fluid in said main combustor means at a volume rate exceeding that at which the fuel and primary air are introduced into said main combustor means, whereby the temperature and the concentration of oxygen in said primary combustion zone can be kept at levels that inhibit the formation



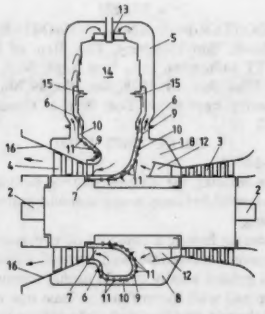
of NO_x; a secondary combustor means downstream of and in fluid communication with said main combustor means; means for supplying fuel to said premixer means and to said secondary combustor means; and means for so controlling the flow of fuel to said secondary combustor means and to said premixer means as to effect a transfer of the combustion process stabilization function to said secondary combustor means under operating conditions below the lean extinction limit of the main combustor means.

4,339,925

METHOD AND APPARATUS FOR COOLING HOT GAS CASINGS

Jean Eggmann, Baden; Hans Graf, Untersiggenthal, and Tadeusz Zaba, Ennetbaden, all of Switzerland, assignors to BBC Brown, Boveri & Company Limited, Switzerland

Filed Jul. 9, 1979, Ser. No. 55,808
Claims priority, application Switzerland, Aug. 3, 1978, 8262/78
Int. Cl.³ F02C 7/18
U.S. Cl. 60—757 4 Claims



1. Apparatus for cooling a hot gas casing of a gas turbine power plant comprising:

a combustion chamber enclosing a combustion space;

a hot gas casing connected downstream of said combustion chamber;

guide means for guiding a stream of cooling air over an outer surface portion of said hot gas casing;

a compressor for supplying cooling air to said guide means;

a gas turbine which receives hot gas from said combustion chamber, said combustion chamber being fixed with respect to the gas turbine, said compressor and said gas turbine being mounted on a common shaft;

said guide means including

a shell which is spaced from and encompasses said hot gas casing to form a channel between the casing and the shell,

openings in the surface of the shell to permit cooling air to enter said channel,

separation means for separating air flowing into the channel from air flowing off the hot gas casing; and

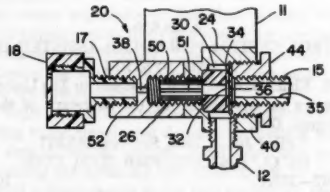
said hot gas casing including means for inducing a film cooling of an inner surface portion of said hot gas casing.

4,339,926

VORTEX TUBE

Anthony L. Moretti, San Rafael, and Lester W. Ferris, Tiburon, both of Calif., assignors to E. D. Bullard Company, Sausalito, Calif.

Filed Aug. 3, 1981, Ser. No. 289,534
Int. Cl.³ F25B 9/02
U.S. Cl. 62—5 **10 Claims**



1. In a vortex tube having a generator portion defining a re-entrant cavity with right circular cylindrical sidewalls and planar end walls defining a right circular cylindrical volume within said cavity, nozzle means interposed between said volume and the remainder of said cavity and extending substantially tangential to said volume, an inlet coupling communicating with said cavity outside said volume, a first outlet passageway of given length and having a diameter smaller than the diameter of said volume communicating with said volume concentrically therewith through one end wall of said cavity, a second outlet passageway communicating with said volume concentrically therewith through an opening in the other end wall of said cavity having a diameter smaller than said diameter of said first outlet passageway, the improvement comprising a groove in the inner surface of said first outlet passageway extending longitudinally of said passageway from the distal end thereof.

4,339,927

GAS-DRIVEN FLUID FLOW CONTROL VALVE AND CRYOPUMP INCORPORATING THE SAME

Domenico S. Sarcia, Carlisle, Mass., assignor to Oerlikon-Buhle U.S.A. Inc., New York, N.Y.

Filed Jul. 6, 1981, Ser. No. 280,291
Int. Cl.³ F25B 9/00
U.S. Cl. 62—6 **13 Claims**

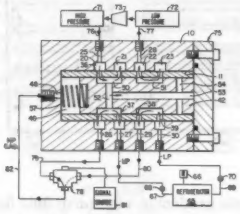
1. A gas-driven fluid flow control valve, comprising in combination:

(a) a valve body with an internal cylindrical bore and having first, second, third and fourth spaced annular grooves in the wall defining said bore;

(b) a valve casing lining said wall of said bore, defining with said grooves first, second, third and fourth outer fluid manifolds and having cut therethrough a plurality of first second, third and fourth radial passages communicating with said first second, third and fourth outer manifolds, respectively;

(c) first and second spaced radial passages from said first outer manifold, a third radial passage from said second outer manifold, fourth and fifth spaced radial passages from said third outer manifold and a sixth radial passage from said fourth outer manifold through said valve body, each of said radial passages being arranged for connection with separate fluid lines;

(d) a valve member slidable within said valve casing to define therein first and second fluid chambers of complementary variable volumes, said valve member having (1) annular grooves in the wall thereof to define with the internal wall of said casing first and second inner axially elongate fluid manifolds, (2) a central fluid passage and (3) first and second radial passages in fluid communication with said central fluid passage, said inner fluid manifolds being spaced and of such a length that when said first fluid chamber is at maximum volume said first and second outer manifolds are in fluid communication through said first and second plurality of passages, with said first inner manifold and said third and fourth outer manifolds are in fluid communication through said third and fourth plurality of passages with said second inner manifold, and when said second fluid chamber is at maximum volume said first outer manifold is in fluid communication through said first plurality of passages with said first inner manifold, said second and third outer manifolds are in fluid communication through said second and third plurality of passages with said second inner manifold, said fourth outer manifold is in fluid communication with said second radial passage thereby providing fluid communication between said fourth and first outer manifolds through said axial passage; and



(e) force applying means acting upon said valve members to maintain said first and second fluid chambers alternately at said maximum volumes.

4,339,928

FREEZING UNIT FOR PRE-COOKED FOOD PACKAGES

Raul Guibert, 10374 Summer Holly Cir., Los Angeles, Calif. 90024

Continuation-in-part of Ser. No. 97,787, Nov. 27, 1979, Pat. No. 4,307,286, which is a continuation-in-part of Ser. No. 971,381, Dec. 20, 1978, which is a division of Ser. No. 809,775, Jun. 24, 1977, Pat. No. 4,132,216, which is a continuation-in-part of Ser. No. 776,772, Mar. 11, 1977, Pat. No. 4,112,916, which is a continuation-in-part of Ser. No. 825,037, Aug. 16, 1977, Pat. No. 4,269,169. This application Nov. 14, 1980, Ser. No. 207,197
Int. Cl.³ F25D 25/00
U.S. Cl. 62—62 **20 Claims**

1. A freezer unit usable in a cold chamber having an atmosphere of cold air whose temperature is below the freezing point, the unit being adapted to freeze food packages and comprising:

A. an open frame;

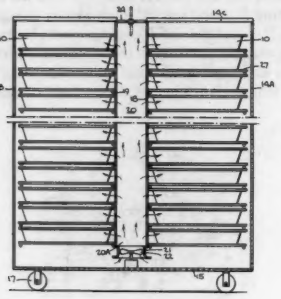
B. a vertical plenum mounted within said frame, said plenum being provided with a perforated wall and having an input and a closeable output;

C. a rack within said frame adjacent said perforated wall to

receive a stack of food packages with horizontal spaces therebetween; and

D. means to draw cold air from the atmosphere of the chamber and to force the air into the input of the plenum to create a positive pressure therein when the plenum is closed whereby the air is projected at high velocity through the holes in the plenum wall into the spaces between the food packages to effect rapid cooling thereof.

15. The method of rapidly freezing a freezable organic product which initially is at a temperature well above the freezing point in a manner minimizing the formation of large ice crystals therein, the method comprising the steps of:



A. subjecting the product to a stream of fluid flowing at high velocity whose temperature is below the freezing point of the product;

B. periodically interrupting the flow to produce fluidic pulses separated by no-flow intervals to create a heat transfer pattern within the body of the product resulting in a reduction in temperature which becomes substantially uniform throughout the body at a level close to the freezing point whereby when freezing thereafter takes place in the body, it freezes almost in toto within a relatively short period to avoid the formation of large ice crystals.

4,339,929

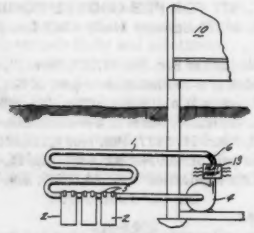
HEAT PIPE BAG SYSTEM

Peter R. Fitzpatrick; Russell G. Meyerand, Jr., both of Glastonbury, and Kenneth E. Shotwell, Stafford Springs, all of Conn., assignors to United Technologies Corporation, Hartford, Conn.

Division of Ser. No. 972,599, Dec. 22, 1978, Pat. No. 4,279,294. This application Apr. 10, 1981, Ser. No. 252,731

Int. Cl.³ F25B *27/02*

U.S. Cl. 62—79 **17 Claims**



1. A method of installing a heat pipe system comprising digging a narrow trench less than one foot wide and four to twelve feet deep in the ground, inserting at least one heat pipe bag for below-ground use, the interior of which is adapted to be combined in heat transfer communication with the exterior of a first heat transfer fluid conduit and to contain in sealed fashion, a second heat transfer fluid, the heat pipe bag comprising a hollow, thin-walled bag having flexibility, puncture resistance, heat transfer fluid inertness, and prolonged below-ground exposure integrity, containing a wick material extending radially outward to the end of the bag from the intended location of the conduit along the anticipated path of principal heat transfer and including a plurality of spacers adjacent the wicks in the heat pipe bag, connecting the heat transfer fluid pipes of the heat pipe system to a heat pump-heat exchange system and refilling the trench.

2. A method of heating and cooling a building structure with a conventional heat pump-heat exchange system containing a heat transfer fluid, the improvement comprising heating or cooling the heat transfer fluid by passing it through a circulation pipe-heat pipe bag system comprising a heat pipe bag, the interior of which is combined in heat transfer communication with the exterior of a first heat transfer fluid conduit, said bag containing in sealed fashion a second heat transfer fluid, said bag comprising a hollow, thin-walled bag having flexibility, puncture resistance, heat transfer fluid inertness and prolonged below-ground exposure integrity and containing a wick material in heat transfer communication with the exterior of the first heat transfer fluid conduit and extending radially outward to the end of the bag from the intended location of the conduit along the anticipated path of principal heat transfer and including a plurality of spacers adjacent the wicks in the bag.

4,339,930

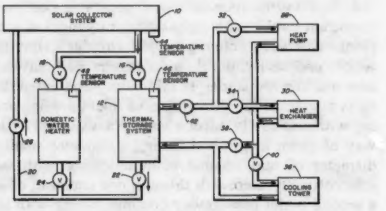
CONTROL SYSTEM FOR SOLAR-ASSISTED HEAT PUMP SYSTEM

Richard E. Kirts, Oxnard, Calif., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Jul. 3, 1980, Ser. No. 165,817

Int. Cl.³ F24J *3/02*; **F25B** *29/00, 27/00*

U.S. Cl. 62—235.1 **10 Claims**



1. In a solar-assisted heating and cooling system which includes a solar energy collection and storage system having a solar collector system, a thermal storage system, and a first pump means for circulating collector fluid between the solar collector system and the thermal storage system, and which includes a heating, ventilating, and air conditioning system having a fluid-to-air heat pump having a heating mode and a cooling mode of operation, a fluid-to-air heat exchanger, a second pump means for circulating a heat storage fluid from the thermal storage system to the heat pump or the heat exchanger, and valve means for directing the flow of the heat storage fluid to the heat pump or the heat exchanger, a fan means for circulating air in said heating and cooling system, and a thermostatic control for selecting either the heating mode or the cooling mode of operation of the system and for providing a signal indicating a demand for heating or cooling, a control system comprising:

a. first temperature sensing means for sensing the temperature of the collector fluid at the outlet of the solar collector system;

b. second temperature sensing means for sensing the temperature of the storage fluid in the thermal storage system;

c. means responsive to said first and second temperature sensing means for activating the first pump means when the temperature sensed by said first temperature sensing means is a preselected amount greater than the temperature sensed by said second temperature sensing means and for inactivating the first pump means when the temperature sensed by said first temperature sensing means is a second lesser preselected amount greater than the temperature sensed by said second temperature sensing means;

d. means for comparing the temperature sensed by said second temperature sensing means with a first preselected temperature, a second preselected temperature, and a third preselected temperature, the first preselected temperature being greater than the second preselected temperature, and the second preselected temperature being greater than the third preselected temperature, and providing a first output when the sensed temperature is greater than the first preselected temperature, a second output when the sensed temperature is less than or equal to the first preselected temperature and greater than the second preselected temperature, a third output when the sensed temperature is less than or equal to the second preselected temperature and greater than the third preselected temperature, and a fourth output when the sensed temperature is less than or equal to the third preselected temperature;

e. logic means responsive to said first, second, third, and fourth output signals from said means for comparing and responsive to the signals from the thermostatic control indicating the heating mode, the cooling mode, and demand for heating or cooling;

f. said logic means responsive to the combination of said heating mode signal, said demand for heating signal and said first or second output signal from said means for comparing for actuating the valve means to couple the thermal storage system to the heat exchanger, for activating the second pump means to circulate the heat storage fluid from the thermal storage system through the heat exchanger and for activating the fan for circulating air across the heat exchanger;

g. said logic means responsive to the combination of said heating mode signal, said demand for heating signal and said third signal from said means for comparing for actuating the valve means to couple the thermal storage system to the heat pump, for activating the second pump means for circulating the heat storage fluid from the thermal storage system through the heat pump, for activating the compressor of the heat pump and for activating the fan for circulating air through said heat pump;

h. said logic means responsive to the combination of said heating mode signal, said demand for heating signal, and said fourth signal from said means for comparing for activating said fan to circulate air to provide ventilation;

i. said logic means responsive to the combination of the cooling mode signal, the demand for cooling signal and the first signal or second signal from said means for comparing for activating the fan to circulate air to provide ventilation;

j. said logic means responsive to the combination of the cooling mode signal, the demand for cooling signal and the third signal from said means for comparing for actuating the valve means to couple the thermal storage system to the heat pump, for activating the compressor of the heat pump, for activating the fan for circulating air through the heat pump, and for activating the second pump means for circulating the heat storage fluid from the thermal storage system through the heat pump;

k. said logic means responsive to the combination of the cooling mode signal, the demand for cooling signal and the fourth signal for actuating the valve means to couple the thermal storage system to the heat exchanger, for activating the second pump means to circulate the heat storage fluid from the thermal storage system through the heat exchanger, and for activating the fan for circulating air across the heat exchanger;

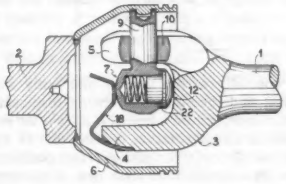
l. said heating, ventilating, and air conditioning system including a cooling means to reject heat from the storage fluid into the outside atmosphere and second valve means for directing the flow of the heat storage fluid from the heat pump or the heat exchanger to the cooling means and from the cooling means back to the thermal storage system, and said logic means of said control system being further responsive to said cooling mode signal or said first output signal from said means for comparing for actuating the second valve means for directing the flow of the heat storage fluid to the cooling means and activating the second circulating pump means for circulating the heat storage fluid.

4,339,931

AXIALLY RETAINED HOMOKINETIC JOINT

Michel A. Orain, Conflans Ste Honorine, France, assignor to Glaenzer Spicer, Poissy, France

Division of Ser. No. 929,816, Jul. 31, 1978, Pat. No. 4,229,871.
This application Jan. 22, 1980, Ser. No. 114,360
Claims priority, application France, Sep. 5, 1977, 77 26873
Int. Cl.[3] F16D *3/30*
U.S. Cl. 464—111 **5 Claims**



1. A homokinetic joint comprising a tulip element defining raceways, a hub defining a radial bearing surface, trunnions extending from the hub, rollers rotatably and slidably mounted on the trunnions, axial retaining means between the tulip element and the hub and comprising at least one thrust member which is axially slidably mounted in the hub and has a radial shoulder in facing relation to the radial bearing surface of the hub, and a resiliently yieldable attachment fixed to an end of the tulip element, and a shim interposed between the radial shoulder of the thrust member and the adjacent radial bearing surface of the hub, the shim being formed by a resiliently yieldable ring in clipped relation to the thrust member and having an axial thickness which is slightly greater than the gap between the radial shoulder and the adjacent radial surface of the hub when the joint is in the position of angular alignment between the tulip element and the hub.

4,339,932

MACHINE FOR KNITTING A TUBULAR FABRIC

Francesco Lonati, Via Vaisorda, 28, Brescia, Italy

Filed Oct. 9, 1979, Ser. No. 83,129
Int. Cl.[3] D04B *9/06, 15/92*
U.S. Cl. 66—28 **4 Claims**

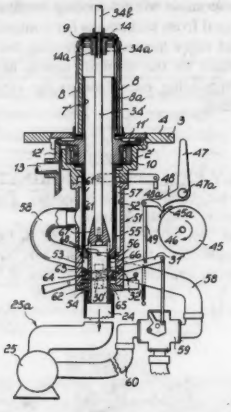
1. A machine for knitting tubular fabrics, in particular stocking articles, of the type comprising a needle cylinder, a cylinder holder coaxial with said needle cylinder and rigid for rotation therewith about a vertical axis, a dial at the top of said needle cylinder at a predetermined distance away therefrom and rotatable about said vertical axis, a suction and discharge duct for a knitted tubular fabric, said suction and discharge duct being in fluid conducting communication on one side with the inside of said cylinder holder and on another side with a suction source, and means for driving said cylinder holder, the machine further comprising:

a tubular body coaxial and rigid with said cylinder holder below thereof;

a shaft extending coaxially through said needle cylinder, said cylinder holder and said tubular body and defining with said cylinder holder an annular chamber, said shaft having a top portion rigid with said dial and being axially non-displaceable within said cylinder holder and said needle cylinder;

an essentially tube-like body whereof at least a part is arranged coaxially within said tubular body and rotatable therewith, said tube-like body being displaceable axially between a first position whereat it is rigid for rotation with said shaft to cause rotation of said dial in synchronism with said needle cylinder, and a second position whereat it forms with said shaft at least one annular passage for communication between said annular chamber and said suction and discharge duct for said knitted tubular fabric;

a control means of essentially lever-like type for axially displacing said tube-like body.



4,339,933

RACKING DEVICE FOR FLAT KNITTING MACHINE

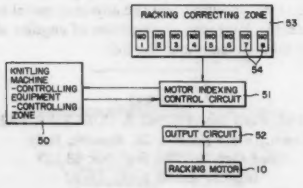
Hideo Inoue, Wakayamashi, Japan, assignor to Shima Idea Center, Co., Ltd., Japan

Filed Jul. 9, 1980, Ser. No. 167,387

Claims priority, application Japan, Jul. 12, 1979, 54-88479

Int. Cl.³ D04B 7/00, 7/20

U.S. Cl. 66—69 **2 Claims**



1. A racking device for a flat knitting machine, which comprises a needle bed slidably mounted on a frame of the machine body and moving in the lateral direction according to a rotation angle of a racking motor, a zone for controlling a knitting machine-controlling equipment for detecting memories which are stored in memory members, a racking-correcting zone which has a plurality of correction value setting devices for racking, in which different correction values are set respectively, a motor indexing control circuit in which signals of the instructions of the knitting machine-controlling equipment-controlling zone for driving the racking motor and correcting the driving of the racking motor are put and which corrects the signals of the instructions for driving the racking motor according to the signal of the instructions for correcting the driving of the racking motor based on the correction value of the correction value setting device corresponding to said signals of the instructions for correcting the driving of the racking motor, an output circuit for amplifying the output of said motor indexing control circuit, and a racking motor having a power source circuit which is put on by the output of the output circuit.

4,339,934

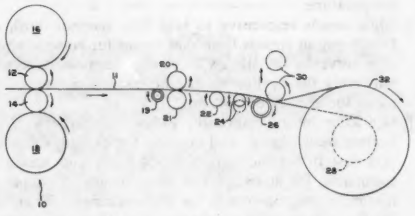
STRIP SHAPE CONTROL

Randolph N. Mitchell, Rome, Italy, assignor to Reynolds Metals Company, Richmond, Va.

Filed Nov. 28, 1980, Ser. No. 211,301

Int. Cl.³ B21B 37/04

U.S. Cl. 72—17 **5 Claims**



1. In a metallic strip rolling apparatus comprising a rolling mill, a tension take-up reel to receive strip rolled through said mill and strip shape sensing means mounted between said mill and said take-up reel and constructed and arranged to adjust said mill for automatic correction of the shape of said strip being rolled in said mill, the improvement comprising a roll mounted to press against said strip between said shape sensing means and said take-up reel, said shape sensing means and said roll being in contact with opposite faces of said strip, and means responsive to the amount of said strip on said take-up reel for controlling the vertical position of said roll relative to said shape sensing means.

4,339,935

METHOD FOR CALIBRATING TUBULAR ARTICLES

Björn O. A. Pettersson, Ystad, Sweden, assignor to AB Carbox, Ystad, Sweden

Filed Apr. 10, 1981, Ser. No. 252,948

Claims priority, application Sweden, Apr. 15, 1980, 8002833

Int. Cl.³ B21D 39/08

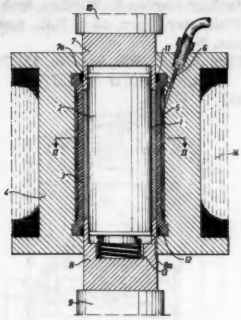
U.S. Cl. 72—57 **2 Claims**

1. A method for calibrating a tubular article made of a pulverulent metallic material which has undergone isostatic pressing and a subsequent sintering operation, comprising the steps of:

placing the article around a central mandrel in an isostatic press;

subjecting the article first to a first press force directed radially inwardly of the article;

then applying to the article an axially oriented force acting to displace the article axially relative to the mandrel; and



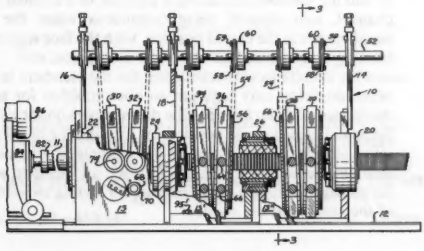
then again applying to the article a force directed radially inwardly and greater than said first press force to press the article against the mandrel.

4,339,936

ANNULAR CORRUGATOR

John R. Pressman, Northampton, England, assignor to UOP Inc., Des Plaines, Ill.

Filed Nov. 3, 1980, Ser. No. 202,909
Int. Cl.³ B21D *15/04, 17/04*
U.S. Cl. 72—77 **7 Claims**



1. An apparatus for annularly corrugating metal tubing comprising:

(a) a first annular die ring adapted to encompass the tubing, said first die ring including a helical internal ridge portion having a tapered lead-in portion and an inner diameter greater than the outer diameter of the tubing and extending circumferentially at a predetermined internal diameter for at least 360° around the interior wall of said first die and adapted to indentably bear on the exterior of said tubing in a substantially radial direction;

(b) at least a second annular die ring adapted to encompass said tubing downstream of said first die ring, said second die ring including a tapered lead-in portion and a helical internal ridge which extends circumferentially for at least 360° at a predetermined internal diameter and which has an internal diameter which is greater than the outer diameter of the tubing which it is adapted to engage, the helical internal ridge in said second die ring having a smaller thread pitch than said first die ring;

(c) means for incurring relative rotation between said tubing and said die rings whereby to axially displace said tubing continually through said dies while simultaneously forming annular corrugations therein; and

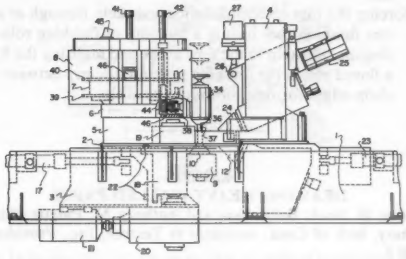
(d) means for synchronizing the rotation of said die rings so that they rotate at the same angular speed.

4,339,937

RING ROLLING MILL

Alfred Strugala; Erich Dittrich, both of Dortmund, and Helmut Siewert, Castrop-Rauxel, all of Fed. Rep. of Germany, assignors to Thyssen Industrie AG, Fed. Rep. of Germany

Filed Jun. 6, 1980, Ser. No. 156,927
Claims priority, application Fed. Rep. of Germany, Jun. 7, 1979, 2923001
Int. Cl.³ B21H *1/06*
U.S. Cl. 72—110 **10 Claims**



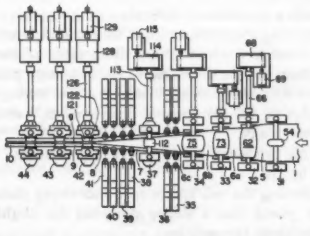
1. A ring rolling mill comprising a rolling mill frame, a rolling platform mounted to the frame, a main roll movably mounted on the frame, a plurality of elongated mandrel rolls mountable laterally of said main roll, a plurality of upper mandrel roll bearing housings, each housing supporting one of the oppositely disposed ends of a mandrel roll, each mandrel roll and one bearing housing associated therewith being axially displaceable, a turret rotatably mounted on the frame at a spaced location above the main roll, carriage means for radially moving the main roll, a supporting arm rigidly connected to the frame and projecting into the space between said turret and said main roll, and said axial displaceable mandrel roll bearing housing being displaceable to engage with and bear upon said supporting arm for rolling a ring.

4,339,938

METHOD AND APPARATUS FOR FORMING METAL PIPES AND TUBES

Makoto Nakagawa, Chiba, and Takeshi Mori, Kitakyushu, both of Japan, assignors to Nippon Steel Corporation, Tokyo, Japan

Continuation of Ser. No. 33,221, Apr. 25, 1979, abandoned. This application Feb. 20, 1981, Ser. No. 236,304
Claims priority, application Japan, May 2, 1978, 53-52281
Int. Cl.³ B21D *5/12*
U.S. Cl. 72—178 **2 Claims**



1. A method of forming metal pipes and tubes for a skelp by laterally bending the skelp, which method comprises:

passing the skelp between convex and concave horizontal rolls for, while keeping the middle portion of the skelp substantially straight, edge-forming successively more

inward parts of the edge portion on each side of the skelp, which parts together extend inwardly up to a distance inward of the edge of from 12.5% to 25% of the width of the skelp and symmetrical to the pass line, for giving each part from 70 to 100% of the ultimate curvature thereof in the finished pipe;

forcing the edge-formed skelp through a plurality of cage roll passes disposed along and symmetrical to the pass line for intermediate forming the remaining portion of the skelp toward a round form symmetrical to the pass line; and

forcing the thus intermediate formed skelp through at least one finishing pass having a plurality of finishing rolls for shaping the skelp to the final shape and inserting the fin of a finned roll in the finishing pass into the gap between the skelp edges for finish-forming the skelp.

4,339,939

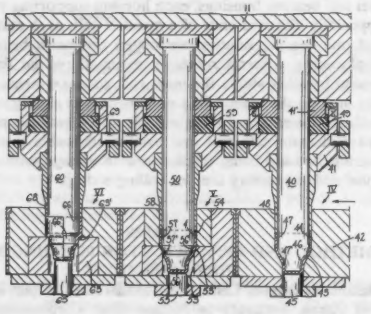
DRAWING HEAVY WALLED PARTS

Walter R. Book, Bethlehem, and Anthony M. Putetti, Waterbury, both of Conn., assignors to Textron, Inc., Providence, R.I.

Continuation of Ser. No. 965,159, Nov. 30, 1978, abandoned, which is a division of Ser. No. 807,072, Jun. 16, 1977, Pat. No. 4,147,049. This application Jun. 15, 1981, Ser. No. 273,640

Int. Cl.³ B21D *22/00*

U.S. Cl. 72—349 **2 Claims**



1. The method of forming heavy walled cup shaped parts without annealing which includes:

providing a multiple station punch and die machine wherein a plurality of punches are associated with sleeves which are slightly movable relatively to their respective punches;

providing a disc-shaped blank;

transferring the blank to a first station and cupping the blank to form a workpiece, the dimensions of the workpiece bottom being established in the cupping operation;

transferring the cupped blank to a die having a die angle such that the die opening is no smaller than the diameter of the blank;

drawing the blank to reduce the cup diameter and increase its height;

transferring the workpiece to a redrawing station in which the punch has a sleeve mounted for slight movement relative to the punch;

bringing the sleeve to bear on the upper edge of the workpiece to maintain compression on the workpiece material during forming; and

reducing the diameter of the workpiece, while simultaneously extruding upward the wall material of the workpiece.

4,339,940

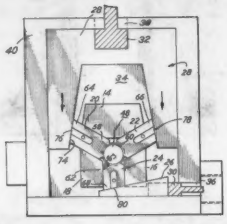
MULTIPART DIE FOR ATTACHMENT OF A METAL CLIP

Frederic M. MacKay; Gordon R. Winders, both of Raleigh, and Thomas E. Whittlesey, Apex, all of N.C., assignors to Tipper Tie, Inc., Apex, N.C.

Filed Jun. 5, 1980, Ser. No. 156,762

Int. Cl.³ B21D *7/00, 37/10*

U.S. Cl. 72—402 **5 Claims**



1. In apparatus for attaching a metal clip to a workpiece, the improvement comprising, in combination:

a multipart die for forming the clip into a substantially fixed diameter, helical configuration on the workpiece, said die including more than two die members, each of the die members having an arcuate face segment opposed to the workpiece, each die member being translatable only in a radial direction toward and away from the center of a circle surrounding the workpiece, said center being intermediate all of the die members, each of the face segments of said die members including a segment of a circular clip channel, said channel being continuous when the die members are in the closed position, with the face segments forming a closed surface about the workpiece; and

means for simultaneously translating the die members in the radial direction only between an open position for positioning a metal clip between the die members on the workpiece and closed circle position for forming the metal clip into a circular configuration on the workpiece, said means including separate die passages for each die member, each die passage forming a radial passage for sliding movement of the associated die member.

4,339,941

METHOD AND APPARATUS FOR PRODUCING THICK WELDED STEEL PIPE

Tadaaki Taira; Toshio Ishihara; Hiromichi Itoshima, all of Fukuyama; Yutaka Mihara, Tokyo, and Takashi Kogawa, Kawasaki, all of Japan, assignors to Nippon Kokan Kabushiki Kaisha, Tokyo, Japan

Filed May 9, 1980, Ser. No. 148,501

Claims priority, application Japan, May 22, 1979, 54-62244

Int. Cl.³ B21D *37/10*

U.S. Cl. 72—412 **29 Claims**

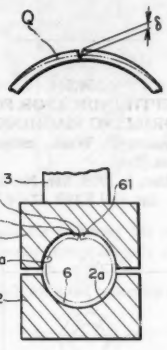
1. A process for producing steel pipe from thick plate material and for reducing the amount of peaking in the pipe during production thereof, comprising:

forming the thick plate into a pipe of generally O-shape by O-ing with a pair of O-ing dies, the O-shaped pipe having two longitudinally extending edges facing each other and forming a longitudinal edge groove therebetween;

locating an inwardly projecting member substantially at the center on an inner caliber of an O-ing die, said projecting member projecting inwardly of said caliber so as to bear on the longitudinally extending outer surfaces of said O-shaped pipe in the vicinity of said facing edges of said O-shaped pipe, said projecting member extending inwardly from the curvature of said caliber and longitudinally in the direction of said edge groove;

engaging said projecting member with said outer surface of

said O-shaped pipe in the vicinity of said facing edges of said O-shaped pipe in the vicinity of said edge groove of said O-shaped pipe; and



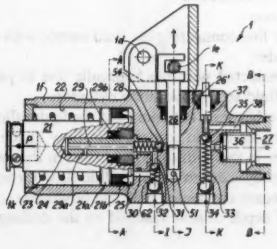
carrying out a further O-ing operation on said pipe with said projecting member in engagement with said outer surfaces of said O-shaped pipe in the vicinity of said edge groove so as to bring said edges together and to reduce peaking in the pipe.

4,339,942

HYDRAULICALLY OPERATED CRIMPING TOOL

Uno Svensson, Porlabacken 5, 124 45 Bandhagen, Sweden

Filed Sep. 10, 1980, Ser. No. 185,688
Claims priority, application Sweden, Sep. 10, 1979, 7907468
Int. Cl.³ B21D *7/06*
U.S. Cl. 72—453.16 **7 Claims**



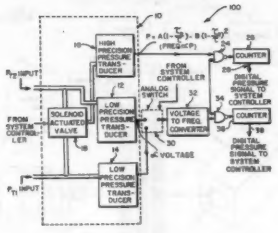
1. Hydraulically operated crimping tool (1) for attaching an electrical connector to an electrical conductor, consisting of a hydraulic oil reservoir (27), which is connected to a pump unit (26) which when operated will pump oil under pressure into an enclosed space (25), into which is introduced a pin (1*k*), said pin being so arranged as to move out of the space as pressure is applied, characterized in that upon the initial activation of the pump unit (26) oil is pumped into a small space (24) of small area and volume, where a small quantity of oil will produce large movement of the pin (1*k*), said movement likewise causing the other enclosed space (25) of greater area and of greater volume to be filled with oil, but as resistance begins to occur to the movement of the pin (1*k*) the pump unit (26) will pump the quantity of oil to the enclosed space (25) of greater area.

4,339,943

PRESSURE TRANSDUCER CROSS-CHECK SYSTEM

Geoffrey S. M. Hedrick, Malvern, Pa., assignor to Smiths Industries Limited, London, England

Filed Aug. 5, 1980, Ser. No. 175,425
Int. Cl.³ G01L *27/00*
U.S. Cl. 73—4 R **20 Claims**



1. In an aircraft instrument system capable of receiving a pair of content related pressure responsive signals for providing input signals based thereon to a controller for said system, said system controller being capable of providing an aircraft instrument control signal responsive to said input signals provided thereto; the improvement comprising a pair of parameter input means; a pair of pressure transducers operatively connected between said parameter input means and said system controller, each of said pressure transducers being connected to a different parameter input means of said pair and being capable of detecting a predetermined parameter associated with said parameter input means for providing a pressure responsive parameter signal to said system controller in accordance with said detected parameter, said detected parameters being related to each other in content whereby said pair of provided parameter signals are related to each other in content, said pair of pressure transducers being operatively connected to said system controller for selectively providing said related parameter signals as said input signals thereto, each of said pair of pressure transducers being a relatively low precision pressure transducer; a common relatively high precision pressure transducer as compared with said low precision pressure transducers, said common high precision pressure transducer being selectively operatively connected between said system controller and one of said pair of parameter input means; and valve means operatively connected between said pair of parameter input means, said pair of low precision pressure transducers and said common high precision pressure transducer for alternately connecting one of said pair of low precision pressure transducers to one of said parameter input means while connecting said common high precision pressure transducer to the other of said parameter input means for selectively alternately providing one of said pair of parameter input signals as a high precision pressure responsive input signal to said system controller on alternate cycles of said low precision pressure transducer pair in accordance with the cycling of said valve means, whereby each of said low precision pressure transducers is alternately periodically calibrated during the operation of said aircraft instrument system dependent on said common high precision pressure responsive input signal.

4,339,944

ULTRASONIC PARTICULATE IDENTIFICATION

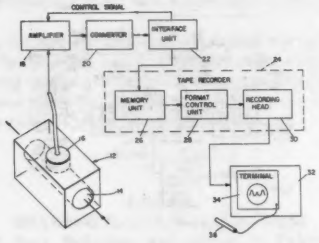
Leigh R. Abts, Providence, and Robert T. Beyer, East Providence, both of R.I., assignors to Micro Pure Systems, Inc., Smithfield, R.I.

Filed May 21, 1980, Ser. No. 151,834
Int. Cl.³ G01N *29/02*
U.S. Cl. 73—19 **7 Claims**

1. A method of identifying and distinguishing different types of discontinuities in a flow comprising:

directing a transmitted pulse of short duration and rich in frequency components essentially transversely across the flow,

detecting an ultrasonic pulse reflected from an unknown discontinuity in the flow, which reflected pulse need not have any frequency change due to discontinuity movement,



transforming said reflected pulse into a multi-component frequency spectrum, in which certain of the frequency components of said reflected pulse are enhanced because of the type of discontinuity reflecting said pulse, and

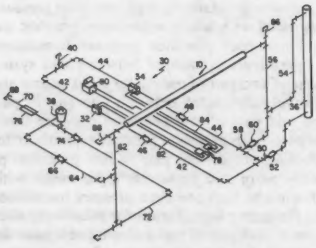
comparing said frequency spectrum with the frequency spectra of known discontinuities, in which spectra different frequency components are enhanced, until a matching frequency spectrum is found.

4,339,945

PROCESS AND APPARATUS FOR TESTING FLUIDS FOR FOULING

James G. Knudsen, Corvallis, Oreg., and Nicholas J. Brindak, Morris Plains, N.J., assignors to Drew Chemical Corporation, Boonton, N.J.

Filed Oct. 30, 1980, Ser. No. 202,351
Int. Cl.³ G01N *17/00*
U.S. Cl. 73—61.2 **18 Claims**



1. An apparatus for testing a fluid to monitor and record fouling data together with other parameters which comprises:

a piping assembly including fluid inlet and outlet means and a heat transfer test assembly, said heat transfer test assembly including a heating member including a heating element disposed within a conduit means having a passageway for said fluid;

means for measuring temperature of said fluid entering said heat transfer test assembly;

means for supplying electrical energy of a preselect quantity to said heating element;

means for measuring a wall temperature of said heating element;

flow means for measuring velocity of said fluid through said conduit means;

means for measuring a parameter selected from the group consisting of corrosion, pH and conductivity; and

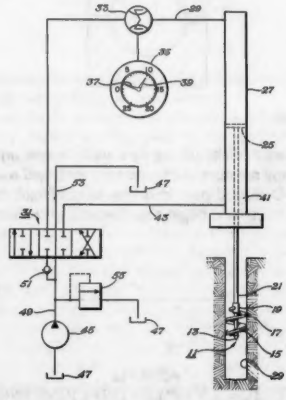
means for simultaneously recording said preselect quantity of electrical energy to said heating element, said measured temperature of said fluid, said measured wall temperature of said heating member, said measured velocity of said fluid through said piping assembly and said measured parameter.

4,339,946

HYDRAULIC DEPTH INDICATOR FOR HYDRAULIC DRILLING MACHINES

Thomas F. Cole, Vancouver, Wash., assignor to Hughes Tool Company, Houston, Tex.

Filed Dec. 5, 1979, Ser. No. 100,597
Int. Cl.³ E21B *47/04*
U.S. Cl. 73—151 **3 Claims**



1. A depth determining apparatus for an earth boring machine of the type having a cylinder, a piston carried in the cylinder, a rotatable drive kelly connected with the piston and adapted to support a drilling tool, the improvement which comprises in combination:

a fluid source;

a hydraulic line connecting the fluid source with the hydraulic cylinder;

a pump connected with the hydraulic line to provide pressurized fluid to the hydraulic cylinder;

valve means between the pump and the hydraulic cylinder in the hydraulic line to control fluid flow to the cylinder;

a flowmeter in the hydraulic line between the valve and the hydraulic cylinder to measure fluid flow through the line;

indicator means connected with the flowmeter, calibrated in terms of depth of hole reached by the drilling tool.

4,339,947

DOWNHOLE SAMPLING METHOD AND APPARATUS

Bruce F. Wiley, Bartlesville, Okla., assignor to Phillips Petroleum Company, Bartlesville, Okla.

Filed Aug. 14, 1980, Ser. No. 177,957
Int. Cl.³ E21B *49/04*
U.S. Cl. 73—151 **19 Claims**

1. Apparatus comprising:

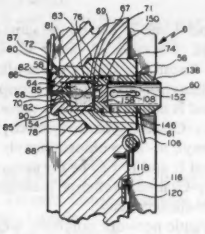
(a) a sample-taking projectile having a sidewall which defines

(i) a sample chamber

(ii) an opening at one end of said projectile leading axially into said sample chamber

(iii) a pair of opposed longitudinally elongated apertures

leading through said sidewall radially into said sample chamber;



(b) a flexible means for tethering the projectile extending through the opposed, longitudinally elongated apertures; and

(c) a means for anchoring the tethering means.

4,339,948

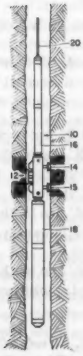
WELL FORMATION TEST-TREAT-TEST APPARATUS AND METHOD

Bobby J. Hallmark, Fort Worth, Tex., assignor to Gearhart Industries, Inc., Fort Worth, Tex.

Filed Apr. 25, 1980, Ser. No. 143,779

Int. Cl.³ E21B *49/00*

U.S. Cl. 73—155 **10 Claims**



1. In the method for testing, then treating, then testing the same sealed off region of a well earth formation, the steps comprising:

(a) isolating a wall region of the earth formation to be tested;

(b) opening a fluid sample chamber to drain a fluid sample from the isolated region of earth formation while sensing the pressure build up of the fluids drawn into said chamber;

(c) expelling a formation treating fluid from a treating fluid chamber into said isolated region of earth formation; and

(d) again opening a sample chamber to draw a fluid sample from said isolated region of earth formation while sensing said pressure build up.

4,339,949

PROCESS AND APPARATUS FOR THE THERMAL MEASUREMENT OF MASS FLOW

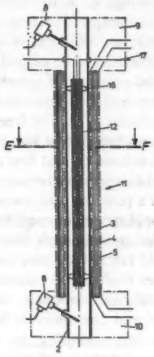
Friedrich Bahner, Rotenburg, and Harry Pleva, Horb, both of Fed. Rep. of Germany, assignors to Babcock-BSH AG, Krefeld, Fed. Rep. of Germany

Filed Dec. 27, 1979, Ser. No. 107,653

Claims priority, application Fed. Rep. of Germany, Dec. 27, 1978, 2856289

Int. Cl.³ G01F *1/68*

U.S. Cl. 73—204 **6 Claims**



1. An apparatus for thermically measuring mass flow, comprising a hollow tube through which a gaseous, vaporous or liquid medium may be passed, temperature sensors disposed at the terminal areas of said tube, two concentric wire coils of a thermic resistance material wound around the outer periphery of said tube, a layer of predetermined thickness interposed between said coils and formed of a material of at most moderate heat conductivity, with at least part of the tube and wire coils surrounded by a cooling or heating device, whereby the mass flow may be measured by ascertaining the heat differential between said two wire coils and obtaining by means of these data and the data from the temperature sensors, the heat balance equation.

4,339,950

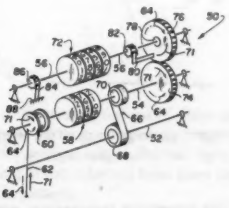
COUNTING MECHANISM ATTACHMENT FOR A FUEL TANK

Nicholas C. Lendino, 125 Rhode Island Ave., Massapequa, N.Y. 11758

Filed Feb. 19, 1980, Ser. No. 122,566

Int. Cl.³ G01F *23/08*; G06M *1/08*

U.S. Cl. 73—310 **5 Claims**



1. A counting mechanism adapted for use as an attachment to a fuel tank so as to record the cumulative amount of fuel resulting from the successive filling of said tank and also to record the amount of fuel removed therefrom incident to heating use of said fuel following each said filling, said mecha-

nism comprising two counter-operating rotatable shafts, a first counter and a second counter respectively mounted on each said shaft so as to provide counting operation in response to shaft rotation, each said counter being of the type that adds in one shaft rotational direction and subtracts in the opposite shaft rotational direction, shaft rotation-powering means operatively connected to said shaft of said first counter and responsive to fuel level changes in said fuel tank so as to cause rotation in said shaft of said first counter such that said first counter adds from a selected starting reference number to a higher number in response to shaft rotation corresponding to a descending fuel level change so as to record the amount of fuel being consumed and subsequent thereto subtracts back to said selected starting reference numeral in response to opposite shaft rotation corresponding to an ascending fuel level change, a gear fixedly mounted on said first counter shaft and a cooperating second gear disposed in intermeshing relation therewith mounted on bearing means so as to be free wheeling relation on said second counter shaft such that said rotational movements in both rotational directions of said first counter shaft responsive to said fuel level changes are imparted to said free wheeling second gear, and a pawl on said second gear and a ratchet fixedly mounted on said second counter shaft disposed in cooperating operative relation with each other such that said pawl drivingly engages said ratchet to cause corresponding rotation in said second counter shaft in one rotational direction but not in said opposite rotational direction, whereby said second counter is adapted to add cumulatively in response to successive shaft rotations corresponding to ascending fuel level changes to provide a number record of the successive fuel tank fillings without there being any subtraction from such number during rotation of said second gear corresponding to a descending fuel level change.

4,339,951

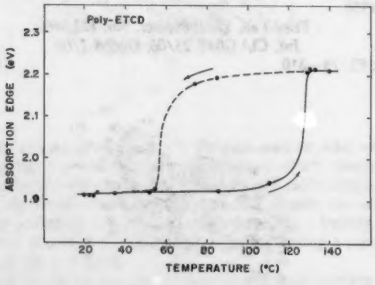
TEMPEATURE MEASUREMENT AND DISPLAY OF INDICIA USING THERMOCHROMIC POLYACETYLENES

Kwok C. Yee, Randolph; Anthony F. Preziosi, Ledgewood; Gordhanbhai N. Patel; Ronald R. Chance, both of Morris Plains; Granville G. Miller, Morristown, and Ray H. Baughman, Morris Plains, all of N.J., assignors to Allied Corporation, Morris Township, Morris County, N.J.

Division of Ser. No. 839,678, Oct. 5, 1977, Pat. No. 4,215,208. This application Apr. 30, 1979, Ser. No. 34,112

Int. Cl.³ C01K *11/12*

U.S. Cl. 374—162 **5 Claims**



1. A device for measuring temperature comprising a substrate having deposited thereon at least one thermochromic polyacetylene being a 1,4 addition polymer of an acetylenic compound selected from the group consisting of

(1) polydiacetylenes which are 1,4 addition polymers of monomers having the following formula:

(A)

$$RHNOCO-(CH_2)_n-C\equiv C-C\equiv C-(CH_2)_n-OCONHR'$$

wherein

(a) n is 4 and R and R' can be the same or different and are isopropyl, n-octadecyl, linear C_1–C_4 alkoxycarbonylmethyl, linear C_1–C_4 p- or m-alkylpenyl, o- or m-chlorophenyl or linear C_1–C_4 monochloroalkyl;

(b) n is 3 and R and R' can be the same or different and are linear C_1–C_4 alkoxycarbonylmethyl, linear C_1–C_4 m-alkylphenyl, m- or p-chlorophenyl;

(c) n is 2 and R and R' can be the same or different and are linear C_1–C_4 m-alkylphenyl, p-methoxyphenyl or linear C_1–C_4 m-alkoxyphenyl;

(2) polyacetylenic network polymers which are 1,4-addition products of crosslinking of polyacetylenes having the following formulas:

(B)

$$[OCONH(CH_2)_6-NHOCO(CH_2)_n-C\equiv C-C\equiv C-(CH_2)_2-C\equiv C-C\equiv C-(CH_2)_n]_x$$

wherein x is large and n is 3; and copolymers formed of the above formulas (B), and (C) where n is an integer from 2 to 6;

(C)

$$[OCONH-(CH_2)_6-NHOCO(CH_2)_n-[C\equiv C-C\equiv C-(CH_2)_2]_2\ C\equiv C-C\equiv C-(CH_2)_n]_x$$

wherein x is large and n is 3; and copolymers formed of the above formulas (B), and (C) where n is 3;

(3) partially polymerized acetylenic compounds containing from about 0.1 to about 50 weight percent of 1,4 addition polymers of acetylenic compositions having the following formulas:

(D)

$$[OCONH-(CH_2)_6-NHOCO(CH_2)_n-[C\equiv C-C\equiv C-(CH_2)_2]_2C\equiv C-C\equiv C-(CH_2)_n]_x$$

wherein x is large and n is 2 or 4;

(E)

$$RNHOCO(CH_2)_n-C\equiv C-C\equiv C-(CH_2)_n-OCONHR'$$

wherein

(a) n is 4 and R and R' are p-chlorophenyl,

(b) n is 3 and R and R' can be the same or different and are linear C_4–C_{18} alkyl, linear C_1–C_4 o-alkoxyphenyl or linear C_1–C_4 o-alkylphenyl;

(c) n is 2 and R and R' can be the same or different and are linear C_2–C_{18} alkyl, linear C_1–C_4 alkoxycarbonylmethyl or m-chlorophenyl;

(d) n is 1 and R and R' can be the same or different and are linear C_6–C_{18} alkyl, p-chlorophenyl or o-nitrophenyl;

(F)

$$RNHOCO-(CH_2)_n-C\equiv C-C\equiv C-(CH_2)_2-C\equiv C-C\equiv C-(CH_2)_n-OCONHR'$$

wherein

(a) n is 4 and R and R' can be the same or different and are linear C_1–C_{18} alkyl;

(b) n is 3 and R and R' can be the same or different and are linear C_1–C_{18} alkyl;

(c) n is 2 and R and R' can be the same or different and are linear C_2–C_{18} alkyl;

(G)

$$RNHOCO-(CH_2)_n-[C\equiv C-C\equiv C-(CH_2)_2]_2-C\equiv C-C\equiv C-(CH_2)_n-OCONHR'$$

wherein

(a) n is 4 and R and R′ can be the same or different and are linear C_2–C_{18} alkyl;
(b) n is 3 and R and R′ can be the same or different and are linear C_1–C_{18} alkyl;
(c) n is 2 and R and R′ can be the same or different and are linear C_1–C_{18} alkyl or phenyl; and

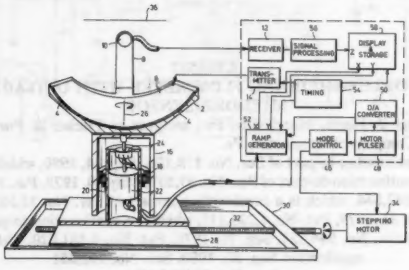
(H)
$[HO-(CH_2)_n-C\equiv C-C\equiv C-(CH_2)_2-C\equiv C]_2$
wherein n is 2 or 3.

4,339,952

CYLINDRICAL TRANSDUCER ULTRASONIC SCANNER

Francis S. Foster, Toronto, Canada, assignor to Ontario Cancer Institute, Toronto, Canada

Filed Apr. 4, 1980, Ser. No. 137,414
Claims priority, application Canada, Apr. 26, 1979, 326460
Int. Cl.³ G01N *29/04*
U.S. Cl. 73—624 **21 Claims**



1. An ultrasonic imaging device, comprising transducer means for transmitting ultrasound pulses into a structure to be imaged and receiving ultrasound scattered by said structure and generating signals in response thereto, means to energize said transducer means to transmit said pulses, scanning means for progressively relating said transducer means to successive linear portions of said structure according to a scanning pattern, and receiver and signal processing means for assembling an image from said generated signals, wherein the transducer means comprises separate transmitting and receiving transducers, one of said transducers being a real or simulated cylindrical transducer having a line focus successively coincident with the axes of said linear structure portions, and the other of said transducers being in coaxial alignment with and aimed along said line focus, the scanning means being operative to move said line focus in relation to the structure to be imaged in accordance with said scanning pattern.

21. An ultrasonic examination method comprising transmitting ultrasound pulse from one transducer and receiving ultrasound scattered by a structure being examined at a second transducer to provide a signal for display, one of said transducers having a line focus in said structure from a lateral direction and the other being aligned with and aimed along said line focus.

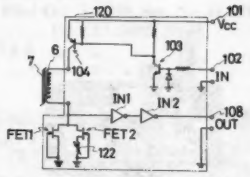
4,339,953

POSITION SENSOR

Shinichiro Iwasaki, Auburn Heights, Mich., assignor to Aisin Seiki Company, Ltd., Kariya, Japan

Filed Aug. 29, 1980, Ser. No. 182,842
Int. Cl.³ G01H *11/00*
U.S. Cl. 73—654 **6 Claims**

1. A position sensor for detecting operational displacement of an operation means, comprising:
a ferromagnetic member movable in response to displacement of said operation means;
permanent magnet means for providing a magnetic field;
core means including a magnetically soft material disposed adjacent said ferromagnetic member and said permanent magnet means for forming a magnetic circuit therewith;
at least one electrical coil disposed on said core means;
detector means for detecting a change of intensity of magnetic flux produced in said core means by the magnetic field of said permanent magnet means in response to a displacement of said strong ferromagnetic member, comprising
means for applying a pulse voltage to said at least one coil; and
means for measuring the time delay occurring from the application of said pulse voltage until saturation of said core means.

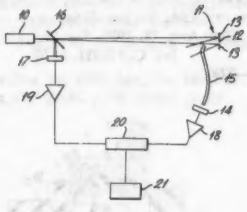


4,339,954

MEASUREMENT OF SMALL MOVEMENTS

Michael Anson; Shin-Ho Chung, both of London, England, and Alan G. Pettigrew, Homebush, Australia, assignors to National Research Development Corporation, London, England

PCT No. PCT/GB79/00043, § 371 Date Nov. 9, 1979, § 102(e) Date Oct. 29, 1979, PCT Pub. No. WO79/00841, PCT Pub. Date Oct. 18, 1979
PCT Filed Mar. 9, 1979, Ser. No. 179,287
Claims priority, application United Kingdom, Mar. 9, 1978, 09398/78
Int. Cl.³ G01B *9/02*
U.S. Cl. 73—657 **14 Claims**



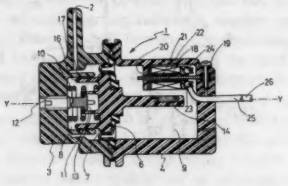
1. A method of measuring the out of plane movement of an oscillating irregular surface, comprising the steps of:
illuminating the surface with coherent light, the reflexions and scattering of the coherent light from the surface forming a speckle pattern,
detecting with a spatially integrating photodetector, variations caused by the out-of-plane movement in the speckle pattern and generating a photodetector signal indicative thereof and
continuously detecting, from the photodetector signal, amplitude variations thereof at the frequency of the out-of-plane movement to represent such movement.

4,339,955

PRESSURE SENSOR

Shinichiro Iwasaki, Auburn Heights, Mich., assignor to Aisin Seiki Company, Ltd., Kariya, Japan

Filed Aug. 29, 1980, Ser. No. 182,841
Int. Cl.[3] G01L 9/10
U.S. Cl. 73—728 13 Claims



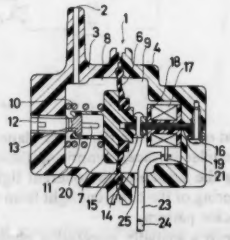
1. A pressure sensor comprising;
a casing defining an inner space;
a movable body dividing said inner space of said casing into a first space and a second space and movable within said inner space in response to pressure differential generated between said first and second spaces;
a fluid port communicating with the first space;
spring means for urging the movable body in a given direction to reduce the volume of the first space or to reduce the volume of the second space;
a permanent magnetic coupled to the movable body and movable therewith;
a core formed of at least one member consisting of a magnetically soft material magnetically coupled to said permanent magnet and disposed adjacent to a range of movement of the permanent magnet;
an electricl coil disposed on the at least one member of said core;
means for applying an electrical signal to said coil to saturate magnetically said core; and
means for producing a pressure output signal indicative of the pressure differential between said first and second spaces based on the amount of time between application of said electrical signal and saturation of said core.

4,339,956

PRESSURE SENSOR

Shinichiro Iwasaki, Auburn Heights, Mich., assignor to Aisin Seiki Company, Ltd., Kariya, Japan

Filed Aug. 29, 1980, Ser. No. 182,848
Int. Cl.[3] G01L 9/10
U.S. Cl. 73—728 6 Claims



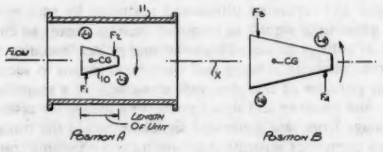
1. A pressure sensor comprising:
a casing;
a movable body located within said casing to divide the interior of the casing into a first space and a second space;
a fluid port disposed in communication with the first space;
spring means for biasing the movable body in a direction opposite to a pressure applied through the fluid port;
a core comprising an amorphous, magnetically soft metal material connected to the movable body, the movable body acting to produce a stress in the core;
an electrical coil disposed on the core for detecting the stress produced therein; and
detection means for applying a predetermined pulse voltage to said electrical coil to saturate said core and for detecting changes in the permeability of said magnetically soft core material as a result of said stress acting on said magnetically soft core material, comprising means for producing an output signal indicative of the pressure applied through the fluid port based on the time between application of said pulse voltage and saturation of said core.

4,339,957

VORTEX-SHEDDING FLOWMETER WITH UNITARY SHEDDER/SENSOR

Peter J. Herzl, Morrisville, Pa., assignor to Fischer & Porter Company, Warminster, Pa.

Continuation-in-part of Ser. No. 178,176, Aug. 14, 1980, which is a continuation-in-part of Ser. No. 37,532, May 10, 1979, Pat. No. 4,262,544, which is a continuation-in-part of Ser. No. 13,557, Feb. 21, 1979, Pat. No. 4,226,117, which is a continuation-in-part of Ser. No. 944,624, Sep. 21, 1978, Pat. No. 4,181,020. This application Sep. 30, 1980, Ser. No. 192,351
Int. Cl.[3] G01F 1/32
U.S. Cl. 73—861.24 11 Claims

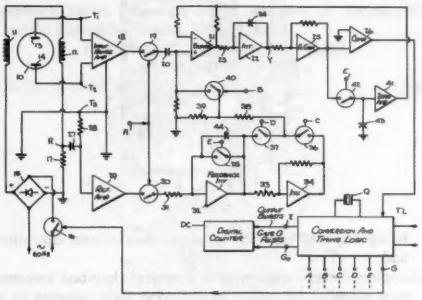


1. A vortex-shedding flowmeter capable of accurately measuring the flow rate of a fluid even under extreme conditions of temperature, the flowmeter comprising:
A. a flow pipe through which the fluid to be metered is conducted along a flow axis;
B. a shedder/sensor unit having a non-circular cross-sectional configuration torsionally supported in said flow pipe along a pivot axis which coincides with the center of gravity of the unit, which axis is at right angles to the flow axis, whereby said unit which is statically and dynamically balanced is intercepted by the fluid to shed vortices on alternate sides and is caused by said vortices to oscillate about said pivot axis at a rate proportional to flow, the support therefor including a relatively stiff torque tube whose base is received within a bore in said flow pipe and is joined thereto and whose tip is joined to one end of said unit to exclude said fluid from the interior of said tube, said support effectively restricting said oscillations to a microscopic movement to prevent an interaction between said movement and the shedding action;
C. a transducer external to said pipe to convert the unit oscillations into corresponding electrical signals; and
D. a link assembly coupling said unit to said transducer and including a main rod extending into the interior of said torque tube and joined to the tip thereof, whereby the motion of the tube is transmitted via the rod to said transducer.

4,339,958
ANALOG-TO-DIGITAL CONVERTER FOR ELECTROMAGNETIC FLOWMETER

Herbert A. Shauger, Willow Grove, Pa., assignor to Fischer & Porter Co., Warminster, Pa.

Filed Feb. 21, 1980, Ser. No. 123,431
Int. Cl.³ G01F *1/00*; H03K *13/02*
U.S. Cl. 73—861.17 2 Claims



1. In combination, an electromagnetic flowmeter in which a fluid being metered passes through a flow tube to intersect a magnetic field, the voltage induced in the fluid being transferred to a pair of electrodes, the electromagnet being supplied with excitation current that is alternatively turned "on" and "off" at a low frequency rate, the resultant flow-induced signal being sampled for a predetermined interval in each "on" and "off" field period to provide a continuous train of samples, successive differences between the samples serving to develop an analog signal representing the flow rate, a reference voltage being derived from said excitation current whose magnitude depends on said current and is therefore indicative of said interval; said excitation current being supplied by a full wave rectifier coupled to a standard a-c power line through an electronic switch activated at a rate which is a sub-multiple of the line frequency to produce a flow induced electrode signal in the alternate "on" and off periods; and an analog-to-digital converter comprising:

A. means to integrate each sample in the continuous train thereof during said interval to produce a sloped voltage extending from a base level to a peak level which depends on the amplitude of the sample and to then under the control of said reference voltage de-integrate the sample back to the base level in a time slot whose duration is directly proportional to the peak level; said integration and de-integration means including an integration amplifier, said electrode signal being applied to said amplifier through a second electronic switch which is activated during said predetermined interval in each of the alternate "on" and "off" periods whereby said amplifier integrates the resultant samples, the de-integration of said integration amplifier being controlled in accordance with said reference voltage;

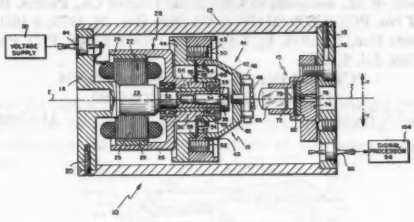
B. a stable source of high-frequency pulses; and

C. means to extract a burst of pulses from said source during each time slot to produce a continuous train of pulse bursts, each of which has a count that depends on the duration of the related time slot, thereby providing the desired digital signal.

4,339,959
RATE GYROSCOPE HAVING AN OPTICAL SENSOR SYSTEM

Benjamin Klaus, Jr., Lexington, and Gordon C. MacKenzie, North Billerica, both of Mass., assignors to Raytheon Company, Lexington, Mass.

Filed Oct. 3, 1979, Ser. No. 81,503
Int. Cl.³ G01C *19/28*
U.S. Cl. 74—5.6 A 7 Claims



2. A two degree of freedom rate gyroscope comprising:

(a) a housing;

(b) a rotatable mass disposed within said housing; said mass having a longitudinal spin axis and two input angular rate axes mutually orthogonal to said spin axis

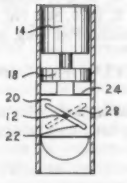
(c) optical sensor means to produce a sequence of electrical signal pulses representative of the angular rate orientation of the rotatable mass; and

(d) said system comprising a mirror rigidly attached to the rotatable mass; said mirror having a reflecting surface with a fixed oblique tilt angle with respect to the spin axis, an autocollimating lens, a fixed light source, a reticle having varying light transparency characteristics to modulate the light rays reflected from the spinning mirror, a light detector for converting the reflected modulated rays in accordance with the angular orientation of the mass into a modulated electrical signal and an electrical signal processor to provide output signal pulses varying in amplitude and time duration indicative of the sensed angular displacement of the gyroscope housing.

4,339,960
DRIVE MECHANISM FOR STIRLING ENGINE DISPLACER AND PISTON AND OTHER RECIPROCATING BODIES

James R. Senft, Athens, Ohio, assignor to Sunpower, Inc., Athens, Ohio

Filed Jun. 30, 1980, Ser. No. 164,823
Int. Cl.³ F02G *1/06*; F16H *21/18*
U.S. Cl. 74—50 11 Claims



2. A multiple yoke for drivingly linking a rotatable crank to two different reciprocating bodies so that said crank and said bodies all have periodic motion having the same period, said bodies having a selected phase angle between their respective periodic motions, said drive comprising:

at least two slotted yokes, each connected to a different one of said bodies and having the pin of said crank extending through their slots, said slots being transverse to each

other along their entire length at least one of said yokes having a portion including said slot which is angularly adjustable for adjustably selecting the relative angular orientation of said slots for adjusting the phase angle between the motion of said bodies.

4,339,961

PRESSURE-RESPONSIVE APPARATUS FOR ASSEMBLING TRACK LINKS OR THE LIKE

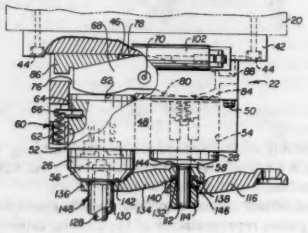
John W. Grillot, Washington, and Teddy R. Young, East Peoria, both of Ill., assignors to Caterpillar Tractor Co., Peoria, Ill.

PCT No. PCT/US79/01130, § 371 Date Dec. 26, 1979, § 102(e) Date Dec. 26, 1979, PCT Pub. No. WO81/01806, PCT Pub. Date Jul. 9, 1981

PCT Filed Dec. 26, 1979, Ser. No. 129,924

Int. Cl.³ F16H *21/44;* B21L *9/00*

U.S. Cl. 74—110 **11 Claims**



1. An apparatus for selectively applying a pressure of a preselected level to first and second contact points (142,144) in response to a differential between a resistance force at each contact point (142,144) comprising:

a housing (48) including first and second laterally spaced and individually movable pressure heads (26,28) for registry with the first and second contact points (142,144), respectively;

means (42) for pressurizing the pressure heads (26,28); and

means (68) for sensing the resistance force at each contact point (142,144), for compensating for the differential between the resistance forces at each contact point (142,144), and for directing an increased pressure to a preselected one of the contact points (142,144) in response to the differential between the resistance forces at the contact points (142,144).

4,339,962

SWITCHING DEVICE FOR VARIABLE SPEED GEARS IN MACHINE TOOLS

Werner Babel, Pfronten-Meilingen, Fed. Rep. of Germany, assignor to Maho Werkzeugmaschinenbau Babel & Co., Pfronten-Meilingen, Fed. Rep. of Germany

Filed Aug. 8, 1979, Ser. No. 64,714

Claims priority, application Fed. Rep. of Germany, Aug. 11, 1978, 2835303

Int. Cl.³ F16H *57/00*

U.S. Cl. 74—335 **8 Claims**

1. In a machine tool having a plurality of sliding gear blocks and associated switching bars, a switching device for variable speed gears comprising:

motor means;

a shaft driven by said motor means;

a main drive shaft;

a switching bar movable in response to rotation of said main drive shaft;

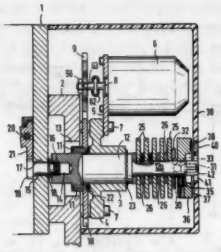
a plurality of gears intermeshing to form a gear train mechanically linking said motor drive shaft with said main drive shaft, said gear train and said motor means being adapted for switching through individual gear stages;

a shock absorber element disposed within said gear train intermediate said shaft driven by said motor means and said switching bar;

a plurality of rotatable, individually adjustable cam discs mounted in sequence axially along said main drive shaft;

a plurality of switches, each one of said switches being actuable by rotation of an associated one of said cam discs;

a plurality of non-rotatable, axially displaceable spacers mounted on said main drive shaft, one of said spacers



being disposed between adjacent ones of said cam discs; and

clamping means comprising a spherical, key-bed transmission actuated by means of threaded bolts adapted to be tightened to exert axial pressure on said cam discs and said spacers to prevent said cam discs and said spacers from rotating on said main drive shaft and to be loosened to permit rotation of individual ones of said cam discs about said main drive shaft.

4,339,963

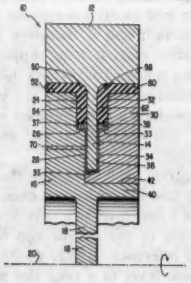
VISCOUS DAMPER

Robert C. Bremer, Jr., Brownsburg, Ind., assignor to Wallace Murray Corporation, New York, N.Y.

Filed Oct. 27, 1978, Ser. No. 955,209

Int. Cl.³ F16F *15/10, 15/22*

U.S. Cl. 74—574 **3 Claims**



1. A torsional vibration damper including,

(a) an annular inertia ring,

(b) a radially inwardly extending tongue carried by the inertia ring and integral therewith,

(c) a pair of annular elastomer members having radially extending portions thereof which sandwich the tongue,

(d) a two-piece annular hub,

(e) the two-piece hub sandwiching the tongue and a portion of the elastomer members, the remaining portions of the elastomer members extending in a generally axial direction and being sandwiched by the two-piece hub and the inertia ring, the two elastomer members being in compression normal to their surfaces which are in surface contact with the hub and inertia ring,

(f) a radially innermost annular cavity in the hub, the radially innermost portion of said tongue extending into said radially innermost annular cavity,

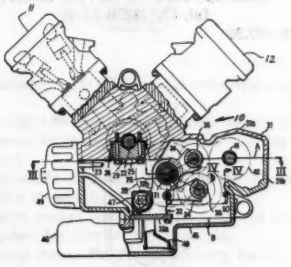
(f) said radially innermost annular cavity containing a viscous damping liquid, whereby the inertia ring tongue cooperates with the viscous liquid to damp torsional vibrations of the hub, and whereby the elastomer members cooperate with the inertia ring and hub to also damp torsional vibrations of the hub.

4,339,964

INTERNAL COMBUSTION ENGINE WITH COMBINED TRANSMISSION CASE AND CRANKSHAFT CASE, AND INTERMEDIATE SHAFT

Yoshiharu Isaka, Shizuoka, Japan, assignor to Yamaha Hatsudoki Kabushiki Kaisha, Iwata, Japan

Filed Nov. 21, 1979, Ser. No. 96,382
Int. Cl.³ F16H 57/02
U.S. Cl. 74—606 R **3 Claims**



1. An internal combustion engine particularly suited for a motorcycle comprising:

a single case having an internal cavity, said case comprising an upper and a lower portion jointed together at a joint plane;

a crankshaft having an axis of rotation at an upper elevation in said cavity;

a main shaft, and an output shaft geared to said main shaft, each having an axis; and

an intermediate shaft having an axis of rotation, the axis of rotation of said intermediate shaft being at an elevation lower than the axis of rotation of said crankshaft, said upper portion housing said crankshaft above said joint plane, said lower portion housing said intermediate shaft below said joint plane, said main shaft and output shaft being housed in said case with their axes of rotation on said joint plane, all of said shafts axes being parallel, said crankshaft being drivingly engaged to said intermediate shaft, and said intermediate shaft being drivingly engageable with said main shaft.

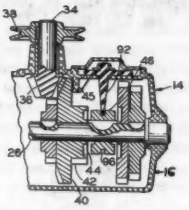
4,339,965

TRANSAXLE WITH BACK-UP FLANGE

Hans Hauser, Fredericktown, and William J. Clayborne, Mount Vernon, both of Ohio, assignors to The J. B. Foote Foundry Co., Fredericktown, Ohio

Division of Ser. No. 849,011, Nov. 7, 1977, Pat. No. 4,232,569. This application Nov. 19, 1979, Ser. No. 95,376
Int. Cl.³ F16H 57/02
U.S. Cl. 74—607 **1 Claim**

1. A transaxle comprising a housing having an upper housing part and a lower housing part affixed together along a meeting line, an input shaft rotatably carried by both of said housing parts at the meeting line thereof, a driven bevel gear carried by said shaft, a drive shaft rotatably carried by said upper housing part, means outside said housing for rotating said drive shaft, a drive bevel gear affixed to said drive shaft in said housing and meshing with said driven bevel gear, and said housing having a flange on one side of said drive shaft adjacent a portion of the side of said driven bevel gear opposite a portion of the side of said driven bevel gear which is engaged by said drive bevel



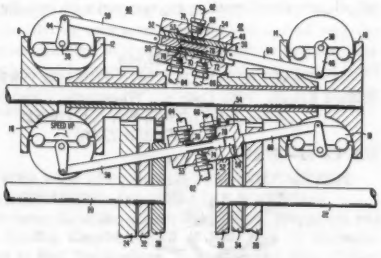
gear for supporting said driven bevel gear and reducing lateral deflection of said input shaft, said flange extending downwardly from an intermediate portion of said upper housing part.

4,339,966

INFINITELY VARIABLE TRANSMISSION DRIVE ARRANGEMENT ESPECIALLY FOR AUTOMOBILES

Charles E. Kraus, Austin, Tex., assignor to Excelermatic Inc., Austin, Tex.

Filed May 30, 1980, Ser. No. 154,948
Int. Cl.³ F16H 35/04, 15/08, 1/44
U.S. Cl. 74—650 **4 Claims**

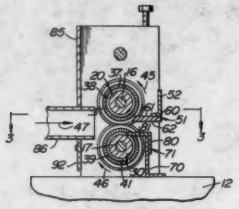


1. An infinitely variable traction roller transmission drive arrangement for driving different load members from a common power source, said arrangement comprising two traction roller transmissions with infinitely variable transmission ratios associated with a common input shaft, each having an output connected to one of said load members; each of said infinitely variable traction roller transmissions having oppositely disposed toric discs with motion transmitting traction rollers engaged between the opposite discs and supported by pivotal support shafts for transmitting motion between the discs with a variable transmission ratio depending on the angular position of said pivotal support shafts and including hydraulic transmission ratio control means for independently varying the transmission ratio of said transmissions and said arrangement further comprising a linkage interconnecting the corresponding pivotal support shafts of said two infinitely variable traction roller transmissions and having associated therewith a hydraulic valve structure controlling the pressurized fluid supply to said hydraulic transmission ratio control means so as to limit the difference in adjustment of their transmission ratios to a predetermined value.

4,339,967
CABLE STRIPPER WITH PEELER

William B. Greenberg, 211 Rock Hill Rd., Bala Cynwyd, Pa. 19004

Continuation-in-part of Ser. No. 75,323, Sep. 12, 1979, abandoned. This application Mar. 13, 1981, Ser. No. 243,528
Int. Cl.³ H02G 1/12
U.S. Cl. 81—9.51 12 Claims

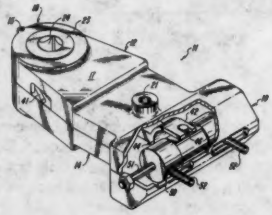


1. Apparatus for stripping sheath from cable, comprising upper and lower feeder wheels for engaging upper and lower sides of a cable to effect endwise cable feeding, said feeder wheels each being of decreasing diameter from opposite ends toward the middle to define a symmetrical peripheral concavity to laterally constrain the cable being fed, a circular cutter fixed coaxially on each of said feeder wheels at the minimum diameter of the peripheral concavity for cutting into diametrically opposite sides of the cable sheath, a sheath peeler located downstream of and in alignment with the cutter of the upper feeder wheel for entry through a cut in the upper side of said sheath to peel the sheath from the remainder of the cable, and a support upstream from said feeder wheels for supporting cable against gravity during feeding between said wheels to effect outward and upward cable feeding from between said wheels into sheath peeling engagement with said sheath peeler.

4,339,968
HYDRAULIC TORQUE MULTIPLIER WRENCH

Willard Krieger, 3965 Cody St., Wheatridge, Colo. 80033

Filed Jul. 21, 1980, Ser. No. 170,623
Int. Cl.³ B25B 13/46
U.S. Cl. 81—57.39 3 Claims



1. A wrench for rotating a work tool, comprising in combination:

a housing;

an output member rotationally connected to the housing and adapted to connect to said work tool;

a drive segment comprising an elongated member;

ratchet means operatively connecting one end of the elongated member to the output member, said ratchet means operatively converting pivotable oscillating motion of the elongated member into intermittent unidirectional rotating movement for the output member;

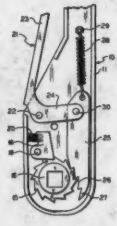
the other end of the elongated member having a slot formed therein;

a fluid piston and cylinder apparatus comprising a piston operatively connected in a substantially fixed position to the housing and a cylinder member reciprocatively movable with respect to the fixed position piston, said cylinder member having at least one pin extending outward therefrom into the slot in the other end of the elongated member of the drive segment, the pin and slot operatively converting reciprocating movement of the cylinder member into pivoting oscillating movement for the elongated member.

4,339,969
RATCHET WRENCH

Albert Hage, 3700 Roanoke Rd., Toledo, Ohio 43613

Filed Apr. 30, 1981, Ser. No. 258,897
Int. Cl.³ B25B 13/46
U.S. Cl. 81—57.39 1 Claim



1. A ratchet wrench comprising:

(a) a housing of oblong form having an edge flange extending therearound provided with an elongate slot disposed along a portion of one side of the flange;

(b) a ratchet wheel rotatable in one end portion of said housing and having a toothed rim and a nut engaging opening concentric therewith;

(c) a spring-tensioned detent engaging said ratchet wheel for preventing rotative movement thereof in one direction;

(d) a bell crank operating lever pivoted in said housing and having one arm extending through the slot of the flange and projecting outside of said housing for manual step-by-step operation of said ratchet wheel and having its other arm disposed within said housing;

(e) a ratchet wheel operating arm having a plurality of successively arranged teeth at one end progressively engagable with the teeth of the toothed rim of said ratchet wheel;

(f) spring means interconnecting an end opposite the toothed end of said ratchet wheel operating arm and said housing effective for holding the toothed end of said operating arm in engagement with the teeth of the toothed rim of said ratchet wheel and retracting said operating arm and said bell crank operating lever to their original positions after release of said bell crank operating lever; and

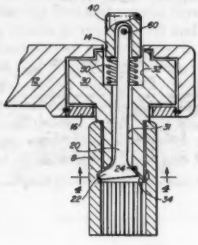
(g) a pivotal connection between the other arm of said bell crank and said ratchet wheel operating arm, said pivotal connection being disposed between the toothed end and the opposite end of said operating arm, whereby upon rocking movement of said bell crank operating lever about said pivotal connection said operating arm is caused to move longitudinally of said housing and, lateral movement of the toothed end of said operating arm away from said ratchet wheel is prevented by the adjacent portion of said edge flange of said housing to effect turning movement of said ratchet wheel.

4,339,970

SERVICEABLE RELEASABLE SOCKET RETAINING RATCHET

Rudolph J. Enstrom, 1520 M 69 Hwy., Crystal Falls, Mich. 49920

Filed Oct. 10, 1980, Ser. No. 195,744
Int. Cl.³ B25B *13/46*
U.S. Cl. 81—60 7 Claims



1. A serviceable, releasable socket retaining ratchet, comprising:
- drive lug means for transmitting torque to said socket;
- ratchet means for reversibly ratchetably rotating said drive lug means;
- totally removable retaining means for selectively coupling said socket to said drive lug means;
- said retaining means comprising latch means for biasing a nose against the interior of said socket;
- said retaining means further comprising button means for releasing the bias upon said latch member;
- said latch means including said drive means having a longitudinal internal aperture provided with a cam surface at an end proximal to said socket;
- said latch means having a shank member passing through said internal aperture;
- said shank member having a pivotal coupling to said button means; and
- said shank member further having a head provided with said nose disposed to selectively contact said socket and also having a cam follower surface disposed to contact said cam follower surface when said button means is released so that said nose is biased toward said socket.

4,339,971

FASTENER AND DRIVING TOOL

Alfredo E. Zatorre, One Crescent Dr., Salem, Mass. 01970

Continuation of Ser. No. 969,013, Dec. 13, 1978, abandoned.
This application Jan. 28, 1980, Ser. No. 115,956
Int. Cl.³ B25B *15/02, 23/08*
U.S. Cl. 81—436 9 Claims

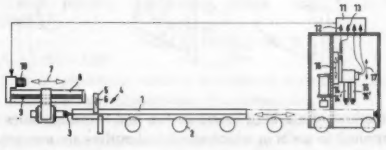
1. Combination elongated member and driving tool for providing rotational motion to said elongated member, said elongated member comprising a shaft, a driving end on said shaft and a top surface on said driving end, a nick in the top surface of said driving end extending transversely to said shaft, said nick comprising a horizontally disposed bottom defining a substantially rectangular shape of predetermined lesser width than the said top surface, spaced-apart sidewalls extending upwardly from said horizontally disposed bottom, an upper surface overhanging said bottom and extending from each said sidewall inwardly and toward each other, at a first predetermined angle relative to each sidewall, and parallel, spaced-apart walls extending vertically upwardly from the end of each said overhanging upper surface and terminating at said top surface thereby defining a substantially rectangular shaped opening of predetermined lesser width than said rectangular shaped bottom; and a driving tool comprising a shank having an operative end for association with the said elongated member and located in said nick, said operative end of the shank comprising a blade of generally an inverted T-shaped cross-section, said blade comprising a bit comprising a bottom surface defining a rectangular shape of predetermined lesser width than the width of the rectangular shaped opening in said elongated member whereby said driving tool can be inserted axially into the nick in the said elongated member, spaced-apart sidewalls extending upwardly from said bottom surface, and top surfaces extending inwardly toward one another from respective sidewalls at a second predetermined angle, the blade being further defined by planar faces and edges converging toward one another and terminating at said top surfaces of the bit, said top surfaces defining an area extending beyond said converging planar faces and edges and the second predetermined angle of said top surfaces being non-complementary with respect to the said first predetermined angle of the respective upper surfaces of the nick, the vertical dimensions of the bit with respect to the vertical location of the said overhanging upper surfaces being such as to permit diagonally opposite portions of the top surfaces of the bit, on operative association of the driving tool with the elongated member, to pass under and into jamming contact with the diagonally opposite, non-complementary, overhanging upper surfaces of the nick whereby the driving tool is temporarily interlocked with the said elongated member in wedging engagement and the elongated member can be presented to or withdrawn from a work piece in any desired orientation and without becoming accidentally separated from the driving too.

4,339,972

METHOD AND APPARATUS FOR VOLUMETRIC PARTITIONING OF ROD-LIKE MATERIAL

Joachim Wepner, Gevelsberg; Kurt Wengenroth, Wuppertal, and Jochen Zuhlke, Gevelsberg, all of Fed. Rep. of Germany, assignors to Rolf Peddinghaus, Ennepetal, Fed. Rep. of Germany

Filed Mar. 19, 1980, Ser. No. 131,770
Claims priority, application Fed. Rep. of Germany, Mar. 21, 1979, 2911364
Int. Cl.³ B26D *5/20*
U.S. Cl. 83—13 10 Claims



1. A method for the volumetric subdivision of a lengthwise conveyed bar-shaped material comprising:
- measuring the width of a notional cross-section of the bar-shaped material by a first caliper means having opposed sensors on the ends of each caliper jaw, by slidingly advancing said first caliper means at a right angle to the direction of conveying said bar, so that the opposed sensors of the first caliper means are maintained in slidable

contact with mutually perpendicular opposite points on opposite sides of said bar,

measuring the length of a notional cross-section of the bar-shaped material at a relatively inclined direction to the measurement of the width by a second caliper means having opposed sensors on the ends of each caliper jaw, by slidingly advancing said second caliper means at a right angle to the direction of conveying said bar, so that the opposed sensors of the second caliper means are maintained in slidable contact with mutually perpendicular opposite points on opposite sides of said bar,

feeding the cross-sectional width measurements from the first caliper means and the cross-sectional length measurements from the second caliper means into a computer which is programmed to calculate a predetermined volume of said bar from the measured width and length of the notional cross-sections and a variable distance of lengthwise conveyance, and to generate a signal to a severing means and an end stop spaced a variable distance from said severing means,

adjusting the end stop distance from the severing means by the generated computer signal so that the predetermined volume of said bar may be severed by said severing means,

conveying said bar lengthwise until one end abuts the end stop, and

severing the bar at the computed length, whereby a subdivision of said bar-shaped material having the predetermined volume is produced.

4,339,973

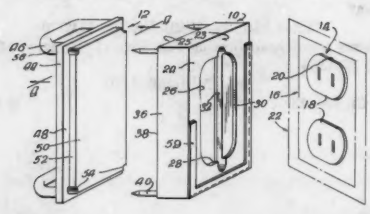
METHOD AND APPARATUS FOR CUTTING ELECTRICAL OUTLET OPENINGS IN PANELS

Robert L. Lawrence, 54 Tim St., Pontiac, Mich. 48054

Filed Apr. 28, 1980, Ser. No. 144,641

Int. Cl.³ G01B *3/14*

U.S. Cl. 83—30 **9 Claims**



1. A method of marking locations for, and forming, holes in panels applied to walls in which electrical outlets are mounted, for the electrical outlets to be exposed through the holes, comprising the steps,

(a) placing a first cutting component having a peripheral shape complementary to the outlet on an outlet in a wall,

(b) placing a panel against the first cutting component,

(c) placing a second cutting component against the panel in register with the first cutting component, and

(d) forcing the second cutting component against the first cutting component and thereby cutting a hole in the panel.

4,339,974

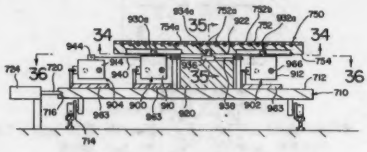
SUPPORTING ANVIL FOR MOVABLE CUTTING PLATEN

Kenneth O. Wood, Ellington, Conn., assignor to Gulf & Western Corporation, New York, N.Y.

Continuation of Ser. No. 113,631, Jan. 21, 1980, abandoned, which is a division of Ser. No. 902,247, May 2, 1978, Pat. No. 4,261,374. This application Jul. 16, 1981, Ser. No. 283,987

Int. Cl.³ A24C *1/04*

U.S. Cl. 83—100 **1 Claim**



1. An apparatus for cutting a profile having a preselected peripheral shape from a sheet tobacco material at a given location, said apparatus comprising a thin cutting table having an upper generally flat, perforated and nonmetallic cutting surface and a lower generally flat support surface, said surface being generally parallel; vacuum means coextensive with said cutting surface for communicating a vacuum to said cutting surface for holding said tobacco material onto said cutting surface by vacuum; a cutter spaced from said cutting surface at a fixed position and having said preselected peripheral shape; means for moving said cutting table in a direction parallel to said surface until said cutter at said fixed position is aligned with said given location on said sheet tobacco material; means for forcing said cutter at said fixed position against said perforated cutting surface along an axis generally orthogonal to said surfaces; a fixed backup anvil having a flat force reaction surface parallel to and facing said flat support surface; means for fixing said anvil with said reaction surface in alignment with said cutting axis; and means for allowing said support surface to bear against said reaction surface when said cutter is forced against said perforated cutting surface, said reaction surface engaging and supporting said support surface as said table is being moved.

4,339,975

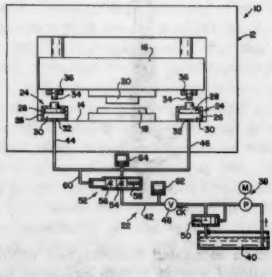
SHOCK DAMPENING SYSTEM FOR PRESSES

Louis F. Carrieri, LaGrange Park, Ill., assignor to Gulf & Western Manufacturing Company, Southfield, Mich.

Filed Oct. 20, 1980, Ser. No. 198,435

Int. Cl.³ B26D *5/12*

U.S. Cl. 83—617 **13 Claims**



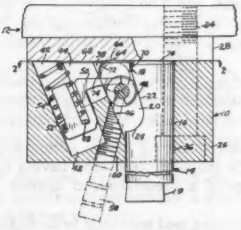
1. A hydraulic shock dampening system for a shearing press having frame means including bed means and supporting reciprocable slide means and wherein material is severed between

cooperable shearing means supported by said bed and slide means, said system including hydraulic fluid receiving variable volume chamber means between said bed means and slide means and connected to a source of hydraulic fluid under pressure, said chamber means being operable under compression in response to breakthrough of material being sheared by said shearing means supported by said slide means to restrain the resulting accelerated movement of said slide means, fluid flow responsive valve means in fluid flow communication with said chamber means for controlling fluid flow therefrom, said valve means having first and second flow controlling positions and including means providing first and second flow passageway means thereacross respectively in said first and second positions, each said passageway means having a fixed area and the area of said second passageway means being substantially less than the area of said first passageway means, means biasing said valve means toward said first position prior to said accelerated slide movement, and said valve means being displaced from said first to said second position by fluid flowing from said chamber means in response to said accelerated movement of said slide.

4,339,976
PUNCH RETAINER

Bernard J. Wallis, 25200 Trowbridge Ave., Dearborn, Mich. 48124

Filed Aug. 11, 1980, Ser. No. 177,117
Int. Cl.³ B26D 7/26; B26F 1/14
U.S. Cl. 83—684 **2 Claims**

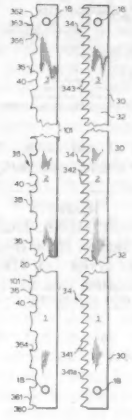


1. In combination a punch having a shank of circular cross section and provided with a punching end of non-circular cross section at its lower end, said shank having an indented side wall portion, a punch retainer having a vertically extending circular bore sized to receive said shank and abutment means against which the upper end of the shank is adapted to bottom when the punch is fully inserted in said bore, said retainer also having a socket therein opening radially into said bore, latch means in said socket resiliently engaging said indented side wall portion of the shank for releasably retaining the punch in said retainer with the upper end thereof engaging said abutment means, said shank having a flat side wall portion, said flat side wall portion having a predetermined circumferential angular relationship to said non-circular punching end, said retainer having a recess therein adjacent the upper end of said bore opening at one side thereof into said bore and provided at the opposite side thereof with a flat abutment face spaced radially from and lying in a plane extending transversely of the central vertical axis of said bore, a leaf spring in said recess having a central body portion and legs at opposite ends bent out of the plane of the central body portion, the free ends of said legs comprising parallel straight edges resiliently engaging the flat side wall of the punch shank and the abutment face of the recess, respectively, said free edges being resiliently displaceable toward each other, the upper end of the punch and the leg of the spring adjacent thereto being shaped such that when the punch is displaced upwardly with its flat side wall aligned generally parallel with said last-mentioned leg of the spring, said leg resiliently engages the flat side wall of the punch and rotates the punch to a position wherein the flat side wall portion is accurately parallel to the free edge of the other leg of the spring.

4,339,977
BLADE RECIPROCATING SAWS

Jack V. Miller, 1917 E. Villa St., Pasadena, Calif. 91107

Filed Jan. 22, 1980, Ser. No. 114,215
Int. Cl.³ B23D 57/00; B27B 33/02
U.S. Cl. 83—848 **7 Claims**



1. In a blade for a reciprocating saw having a cutting edge comprising a plurality of longitudinally aligned teeth, the improvement comprising said teeth having a negative rake angle near the leading end of the blade for reducing needed force for cutting at the beginning of a cutting stroke, increasing rake angle from the leading end of the blade including a transition through zero rake angle in the intermediate region of the blade, and a positive rake angle near the trailing end of the blade for increasing the force necessary for cutting toward the end of a cutting stroke to decelerate the saw during or at the end of a stroke, whereby cutting actions are related to expected blade speed at any given point on the saw and relatively constant muscular effort is required over the length of a stroke.

4,339,978
ELECTRONIC MUSICAL INSTRUMENT WITH PROGRAMMED ACCOMPANIMENT FUNCTION

Akio Imamura, Hamamatsu, Japan, assignor to Nippon Gakki Seizo Kabushiki Kaisha, Hamamatsu, Japan

Filed Aug. 7, 1980, Ser. No. 176,044
Claims priority, application Japan, Aug. 7, 1979, 54-108742[U]
Int. Cl.³ G10F 1/00
U.S. Cl. 84—1.03 **9 Claims**

1. In an electronic musical instrument capable of providing an automatic accompaniment, in combination:

(a) keyboard means to be played on by the player;

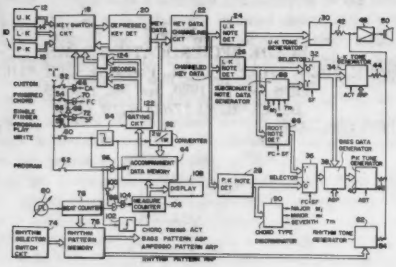
(b) an accompaniment data memory;

(c) means for introducing a desired sequence of accompaniment data into the accompaniment data memory for storage therein using certain keys of said keyboard means for selection of said desired data;

(d) means for causing the accompaniment data memory to put out the accompaniment data in the desired sequence; and

(e) means for producing an accompaniment both in accor-

dance with the accompaniment data recovered from the accompaniment data memory and in response to the depressing of ones of said certain keys on the keyboard means while said means for causing is operative.



4,339,979

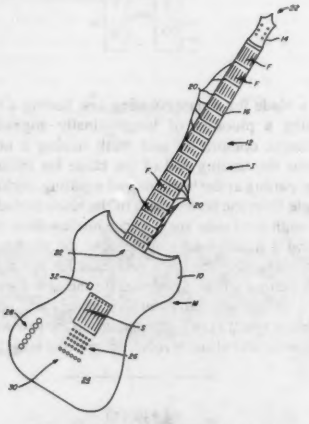
ELECTRONIC MUSIC INSTRUMENT

Travis Norman, 2232 Shadow Dale, Houston, Tex. 77043

Continuation-in-part of Ser. No. 971,855, Dec. 21, 1978, abandoned. This application Dec. 21, 1979, Ser. No. 105,972

Int. Cl.³ G10H *1/057, 1/08*

U.S. Cl. 84—1.23 **11 Claims**



1. An electronic musical instrument for electrically forming output signals having at least one frequency component and an amplitude defining envelope to simulate musical notes and chords from a stringed musical instrument, comprising:

(a) input means for receiving an indication from a user of the output signal to be formed, said input means comprising:

(1) a plurality of string touch pad means corresponding in number of the number of strings on the musical instrument being simulated, each of said string touch pad means representing one of the strings being simulated;

(2) touch circuit means individually associated with each of said string touch pad means for forming an electrical signal when the string touch pad means associated therewith is contacted;

(3) control input means for permitting the user to specify the envelope of the output signal being formed;

(4) input switch means for permitting the user to selectively form harmonic frequencies of notes being formed in the instrument;

(5) control knob means, equal in number to said string touch pad means, for permitting a user to indicate the level of the harmonic frequencies being formed;

(b) oscillator means for forming a reference clock frequency pulse signal;

(c) digital circuit means for forming digital count signals defining the frequency component of the output signal to be formed in response to receipt of electrical signals from said touch circuit means;

(d) digital counter means responsive to the digital count signal from said digital circuit means for dividing the frequency of the reference clock frequency pulse signal to form the output signal frequency; and

(e) envelope control circuit means for forming the envelope of the output signal in response to that specified by said control input means.

4,339,980

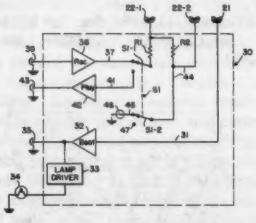
LOOP TAPE RECORDER

Helen Hooke, 29 Glen Ave., Port Chester, N.Y. 10573, and David Lerner, 350 Bleecker St., New York, N.Y. 10014

Filed Aug. 29, 1980, Ser. No. 182,773

Int. Cl.³ G10H *3/03*

U.S. Cl. 84—1.28 **11 Claims**



1. A loop tape recording device, comprising

a multi-track magnetic tape loop having recorded on one track thereof a predetermined number of spaced beat signals,

means for driving said tape loop in an endless path,

means mounting a plurality of electronically operated recording heads adjacent said path with each of said heads being disposed in operative registry with a different track on said tape,

a first circuit connected to the head which registers with said one track, and operative when this first-name head is energized, to reproduce said predetermined beat signals at a first terminal upon each revolution of said tape loop, and

a second circuit connected to a second one of said heads and operable, when said tape is driven and said second head is energized, selectively to record audio signals onto, and to reproduce recorded signals from, a second track on said tape loop,

said second circuit including a switch selectively operable instantly to switch said second head between its signal recording and signal reproducing modes, respectively.

10. A method of supplementing a live musical performance, comprising

recording a plurality of beat signals on one track of a multi-track magnetic tape,

utilizing said tape for repeatedly reproducing a predetermined series of said recorded beat signals at a first terminal,

recording a series of audio signals on a second track on said tape during the reproduction of one of said predetermined series of signals at said first terminal, and

without rewinding said tape, audibly reproducing said series of audio signals immediately following said reproduction of said one series of said predetermined signals at said first terminal, and including

reproducing said predetermined series of signals audibly or

visually from said first terminal for use by a performer during the recording of said audio signals.

4,339,981

SOFT BODY GUITAR

Walter E. Smith, P.O. Box 707, Weiser, Id. 83672

Filed Apr. 11, 1980, Ser. No. 139,357

Int. Cl.³ G10D *1/08*

U.S. Cl. 84—291 **14 Claims**

1. In a musical stringed instrument such as a guitar, the combination of: a soft support member having flexibility to conform to the contours of a human body in either standing or sitting position, said support member having internal soft structure for maintaining its overall shape and thickness, a stem mounted on said support member, and a bridge and a nut mounted at spaced locations on said stem defining a plane for strings.

11. In a guitar or similar stringed instrument having strings, and means for supporting the strings; a flexible support member for said means including sufficient internal flexible material for inherently controlling the shape of the support member while being yieldable to accommodate the contours of a human body or adjacent structure when the instrument is played while the flexible support member is in contact with the human body or adjacent structure.

4,339,982

SNARE BED STRAINER FOR SNARE DRUM

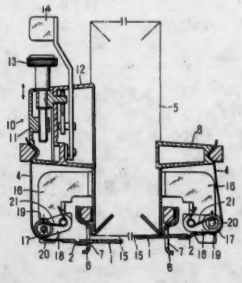
Masao Hoshino, Owari Asahi, Japan, assignor to Hoshino Gakki Ten, Inc., Japan

Filed Oct. 8, 1980, Ser. No. 194,982

Claims priority, application Japan, Nov. 20, 1979, 54-160592[U]

Int. Cl.³ G10D *13/02*

U.S. Cl. 84—415 **5 Claims**



1. A snare bed strainer, adapted for moving the snare bed of a snare drum selectively into and out of contact with a cooperating drum head,

wherein the drum includes a shell, a drum head which is adapted to vibrate and which is located toward an end of the shell, and a rim of the shell at that end of the shell, and

wherein the snare bed comprises a plurality of strands for extending across the drum head and for contacting the surface of the drum head and comprises bands at the ends of the strands for supporting the strands to the drum shell, the snare bed strainer comprising:

first press means at a side of the drum shell for supporting one of the bands to the drum shell; second press means at a side of the drum shell, across the drum body from the first press means, for supporting the other band of the drum shell; at least one of the press means including tensioning means for tensioning the snare bed strands by pulling the bands between the press means;

at at least one of the sides of the drum body and near the respective press means a pivotable link being journaled to the drum shell normally extending outwardly from the journal thereof away from the other press means to a snare engaging part and being pivotable around the journal thereof along a pathway for moving the snare bed selectively away from the drum head surface and to the drum head surface, and the snare bed passing over the link engaging part to be moved such that the snare bed may move away from the drum head and to the drum head as the link pivots; a spring for acting on the link for normally biasing it to pivot to move the snare bed away from the drum head in opposition to the force of the tensioning means on the snare bed, and the snare bed springs also being movable in opposition to their own biasing force to move the snare bed to the drum head;

such that upon a decrease in tension of the snare bed by the tensioning means, the springs lift the snare bed away from the drum head surface, and upon an increase in tension of the snare bed by the tensioning means beyond a predetermined tension, the tensioning means exert a tensioning force in opposition to and greater than the force which the springs exerts on the snare bed, whereby the springs shifts to permit the snare bed to move into contact with the drum head surface.

4,339,983

CLAMPING DEVICE FOR CLAMPING PLATE-LIKE MEMBERS

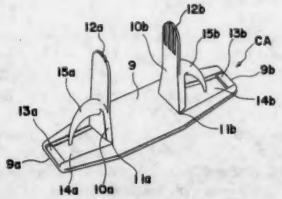
Koichi Okamura, Fukuoka; Susumu Kusakabe, Takatsuki; Masahiro Yoshida, Yokohama, and Fumio Hiraoka, Kadoma, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Kadamo, Japan

Filed Feb. 9, 1979, Ser. No. 10,981

Claims priority, application Japan, Feb. 13, 1978, 53/15532; Feb. 13, 1978, 53/15533

Int. Cl.³ F16B *15/00*

U.S. Cl. 41—466 **8 Claims**



1. A clamping device for clamping plate-like members together which comprises: a flat base portion of flexible material, a pair of flat pivotal members having thin hinge portions joining said pivotal members to said base portion, piercing members on the surfaces of said pivotal members which, when said pivotal members are pivoted away from one surface of said base portion, project toward said one surface, said base portion having openings therein in positions for allowing said piercing members to pass therethrough when said pivotal members are

pivoted into substantially coplanar relation with said one surface of said base plate, the free ends of each of said pivotal members having projecting portions having a thickness less than the thickness of said pivotal members and extending away from said hinge portions and coplanar with the surfaces of said pivotal members which are on the opposite sides thereof from the surfaces from which said piercing members project, and which, when said pivotal members are pivoted into substantially coplanar relation with said one surface of said base plate, are spaced from the level of the other surface of said base plate in the direction of said one surface of said base plate to leave a free space beneath said projections for enabling the finger of a user to be engaged with the projections to pivot said pivotal members away from said base plate.

4,339,984

DRIVE, PARTICULARLY FOR AN INDUSTRIAL MANIPULATOR

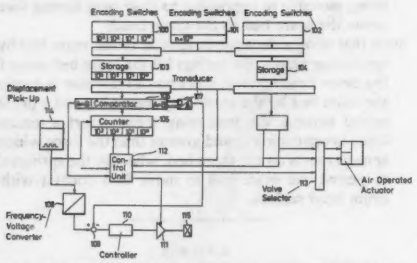
Gerd Hühne, Mörsch, Fed. Rep. of Germany, assignor to G. H. Pfaff Pietzsch Industrieroboter, Fed. Rep. of Germany

Continuation of Ser. No. 812,773, Jul. 5, 1977, abandoned, which is a continuation of Ser. No. 469,757, May 14, 1974, abandoned. This application Nov. 1, 1979, Ser. No. 90,097

Claims priority, application Fed. Rep. of Germany, May 29, 1973, 2327387

Int. Cl.³ F15B *15/26*

U.S. Cl. 91—42 **19 Claims**



1. A drive, particularly for an industrial manipulator, comprising, in combination:

an air-operated actuator having a driving element adapted for direct connection to a movable working member of a driven mechanism to displace the member when the actuator is activated, the atuator being constantly supplied with air at full operating pressure during both movement and non-movement of said driving element, whereby the air at full operating pressure is constantly available as a power reserve even when said driving element is not moving;

a control valve connected to said actuator for controlling the constantly supplied air, said control valve having an open position and a closed position, the constantly supplied air of the actuator taking place with the control valve in the open position;

an electromagnetic brake means connected to said driving element having a movable brake element engageable with said driving element, and selectively operable, when energized, to brake said driving element;

a control system connected to said actuator and to said brake means and controlling the position and velocity of said driving element and energization of said brake means;

said control system including control means controlling the position of said control valve for constantly supplying air at full operating pressure to said actuator when it is activated to move said driving element at a controlled initially relatively high velocity toward a preselected final position;

said control means, when said driving element attains a preselected position at a measurable distance in advance of the preselected final position, controllably energizing said brake means independently of the controlling of the position of said control valve, to decelerate said driving element to a velocity, at a position immediately in advance of the final position, which is a minor fraction of said initial velocity, while continuing supplying air at full operating pressure to said actuator, and then fully energizing said brake means to stop said driving element substantially at said final position with said actuator still supplied with air at full operating pressure to maintain said driving element stationary in said final position;

said actuator, due to still being supplied with air at full operating pressure with said driving element stationary, absorbing any load reaction in excess of that absorbable by said electromagnetic brake means, whereby said drive, due to the inclusion of said air-operated actuator constantly supplied with air at full operating pressure has the load-displacing and load-sustaining advantages of a purely pneumatic drive and, due to the inclusion of said electromagnetic brake means, has a continuous velocity control and accurate position control advantages of a purely electrical drive;

said control system including means deriving an error signal representing the difference between the actual position of said driving element and the desired final position thereof, said control means effecting quasi-continuous cut-off control of the energization of said electromagnetic brake to continuously control the velocity of said driving element as a function of the error signal until said driving element reaches said position immediately in advance of the final position at which its velocity has been reduced to a creep velocity which is a minor fraction of said initial velocity; said control means thereupon controlling said quasi-continuous cut-off control of the energization of said electromagnetic brake means for instantaneous full energization of said electromagnetic brake means to stop said driving element substantially at the final position;

said control system including measuring means operatively associated with said driving element to determine the actual position of said driving element; setting means operable to set the desired position of said driving element; position comparing means connected to said measuring means and to said setting means and producing an output displacement error signal corresponding to the difference between the actual and desired position of said driving element, means operable to measure the velocity of said driving element and to produce an output signal corresponding to the velocity of said driving element; comparator means having inputs connected to said position comparing means and to said velocity measuring means and comparing the displacement error signal with the velocity signal; and a controller having an input connected to the output of said comparator means and producing an output signal controlling energization of the electromagnetic brake means.

4,339,985

AIR DRIVEN RECIPROCATING DEVICE

James K. Wilden, Yucaipa, Calif., assignor to Wilden Pump & Engineering Co., Inc., Colton, Calif.

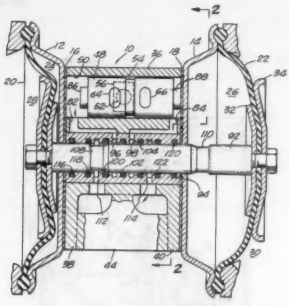
Filed Apr. 21, 1980, Ser. No. 141,815

Int. Cl.³ F01L *25/06*

U.S. Cl. 91—307 **3 Claims**

1. An air driven reciprocating device having air chambers and diaphragms, a valve piston, a control rod having ends fixed to said diaphragms of the air driven reciprocating device, two axial passages in said control rod, and a housing having a cylinder closed at each end and enclosing said valve piston, a passageway through which said control rod extends, a first one of said air chambers of the reciprocating device being adjacent a first end of said control rod passageway and a second one of said air chambers of the reciprocating device being adjacent a

second end of said control rod passageway, an air inlet to said cylinder spaced from the ends of said cylinder, valve piston vent passages extending from the ends of said cylinder to said passageway, and control rod vent passages extending from said passageway to atmosphere, said control rod vent passages intersecting said passageway outwardly of said valve piston vent passages, said valve piston cooperating with said housing to include means for directing incoming air to the ends of said



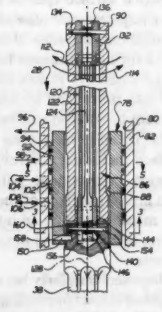
valve piston and means for selectively directing incoming air to and exhausting outgoing air from said air chambers of the air driven reciprocating device, wherein the improvement comprises a seal in said passageway near each end thereof, said seals each being wider axially along said passageway than the length of each of said axial passages in said control rod, each said seal including two shaft sealing elements spaced axially along said passageway at a distance greater than the length of each said axial passage in said control rod.

4,339,986

POWER STEERING APPARATUS

Rupert L. Atkin, St. Clair Shores, Mich., assignor to TRW Inc., Cleveland, Ohio

Filed Apr. 17, 1980, Ser. No. 140,451
Int. Cl.³ F15B *9/10*
U.S. Cl. 91—375 A **32 Claims**



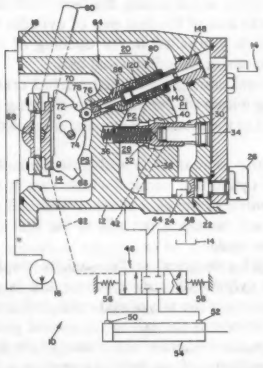
1. An apparatus for use in a power steering system to effect turning movement of a steerable vehicle wheel, said apparatus comprising a power steering motor adapted to be connected with the steerable vehicle wheel, said power steering motor including a first surface area against which fluid pressure is applied to effect turning movement of the steerable vehicle wheel in one direction and a second surface area against which fluid pressure is applied to effect turning movement of the steerable vehicle wheel in another direction, said first surface area being larger than said second surface area, valve means for porting fluid pressure to said power steering motor, said valve means being actuatable in a first direction from an initial condition to effect an increase in the fluid pressure applied to said first surface area and being actuatable in a second direction from the initial condition to effect an increase in the fluid pressure applied to said second surface area, and spring means for resisting actuation of said valve means in the first direction with a first spring force and for resisting actuation of said valve means in the second direction with a second spring force which is smaller than the first spring force, said spring means including first and second spring members which are deflected upon actuation of said valve means in the first direction from the initial condition to provide the first spring force, only said first spring member being deflected upon actuation of said valve means in the second direction from the initial condition to provide the second spring force.

4,339,987

PRESSURE DETENT MECHANISM

Dwight B. Stephenson, Hudson, and David L. Koehler, Waterloo, both of Iowa, assignors to Deere & Company, Moline, Ill.

Filed Nov. 3, 1980, Ser. No. 203,300
Int. Cl.³ F15B *13/04*
U.S. Cl. 91—426 **38 Claims**



1. In a hydraulic system having a source of fluid pressure, a sump, a control valve having selected positions for controlling fluid communication between the source, the sump and a fluid motor, passage means for communicating fluid between the source and the control valve, detent means movable to a locking position for releasably holding the control valve in at least one of the selected positions, and hydromechanical means coupled to the detent means for urging the detent means to the locking position and for resisting movement of the control valve out of the at least one selected position, the hydromechanical means comprising:

a housing defining a walled bore in communication with the passage means and the sump;

a sleeve movably mounted in the bore; and

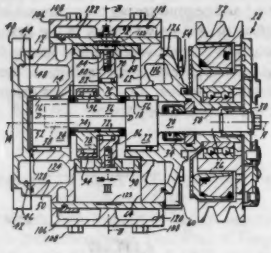
a rod movably mounted in the bore, coupled to and received by the sleeve, and engageable with the detent means, the sleeve, the bore and the rod cooperating to define a first cavity communicated with the sump and a second cavity communicated with the passage means, the sleeve being movable in response to a differential pressure between the first and second cavities to urge the rod towards the detent means to thereby bias the detent means towards its locking position.

4,339,988

FREE ECCENTRIC RECIPROCATING PISTON DEVICE

Duane F. Steele, Dundee, Mich., assignor to Ford Motor Company, Dearborn, Mich.

Filed Apr. 8, 1980, Ser. No. 138,387
Int. Cl.³ F01B 1/06
U.S. Cl. 91—493 3 Claims



1. A reciprocating radial piston device comprising:

a housing formed of a single piece having an axially directed opening, a first pair of radially directed coaxial cylinder bores, a second pair of radially directed coaxial cylinder bores whose axis is axially displaced from and perpendicular to the axis of the first pair of cylinder bores;

a crankshaft journalled in the opening of the housing for rotation about its longitudinal axis;

a cylindrical crankpin mounted on said crankshaft and extending within the central opening having an axis directed parallel to the crankshaft axis and displaced radially therefrom;

an eccentric journalled on said crankpin including:

a first cylindrical surface whose axis is parallel to and eccentric of the axes of said crankshaft and said crankpin and intersects the axis of the first pair of cylinder bores, and;

a second cylindrical surface axially displaced from the first cylindrical surface whose axis is parallel to and eccentric of the axis of said crankshaft and said crankpin and intersects the axis of the second pair of cylindrical bores, the centers of the circles of the first and second cylindrical surfaces being located on a diameter of the crankpin equidistant from and on opposite sides of the crankpin axis;

first and second piston yokes journalled on the first and second cylindrical surfaces respectively of the eccentric assembly extending radially therefrom in substantial alignment respectively with the axes of the first and second pairs of cylindrical bores;

a first pair of pistons mounted on diametrically opposite ends of said first piston yoke for reciprocating movement within the first pair of cylinder bores;

a second pair of pistons mounted on diametrically opposite ends of said second piston yoke for reciprocating movement within the second pair of cylinder bores;

cylinder heads mounted on said housing at the outer end of the cylinder bores to seal the cylinder bores;

porting means formed within said housing for carrying fluid to and from the cylinder bores;

valve means for controlling the entry of fluid into and its exit from the cylinder bores;

end cover plates mounted on said housing for sealing the central opening;

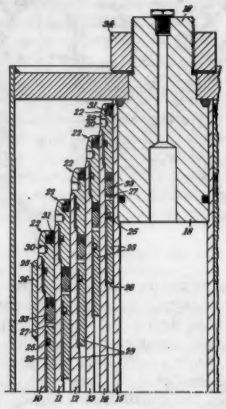
whereby the pistons reciprocate within the cylinder bores to compress the fluid as the crankshaft is driven in rotation.

4,339,989

HYDRAULIC RAMS

Raymond G. Webster, 10 Ravenswood Dr., Chorley New Road, Heaton, Bolton, Lancashire, England

Filed Dec. 6, 1979, Ser. No. 100,748
Claims priority, application United Kingdom, Dec. 18, 1978, 48916/78
Int. Cl.³ F01B 7/20
U.S. Cl. 92—53 10 Claims



1. A multi-stage hydraulic ram, comprising:

a plurality of telescopic ram tubes extendable by a hydraulic fluid under pressure;

end formation means provided between each of said ram tubes and disposed at the exposed ends of said ram tubes for providing a working surface for the hydraulic fluid, each of said end formation means having a sliding surface on one longitudinal surface thereof for enabling a sliding movement of an adjacent ram tube of next higher diameter relative to an adjacent ram tube of next smaller diameter, each of said end formation means further including:

a removable end assembly means located at the exposed ends of said ram tubes, and located annularly between each of said ram tubes, said end assembly means including an annular member having an exterior surface, said exterior surface including a screw threaded portion in screw threaded engagement with a screw threaded portion of an interior surface of the associated ram tube, said annular member having an interior surface providing said sliding surface for the next adjacent ram tube of smaller diameter,

spacer means disposed annularly between each of said ram tubes, said spacer means providing said working surface for the hydraulic fluid, and

removable annular sealing means located longitudinally between the removable end assembly means and the spacer means and located annularly between each of the ram tubes for providing a hydraulic fluid tight seal between the end assembly means and the spacer means along said sliding surface thereof,

each of the end assembly means being dimensioned to enable one of the end assembly means and the sealing means associated therewith to be withdrawn in an axial direction without the need to remove the next adjacent end assembly means associated with the ram tube of the next smaller diameter.

4,339,990

MOVABLE WALL FOR A PNEUMATIC BOOSTER

Peter Riedel, Schulstrasse 41, 6234 Hattersheim, Fed. Rep. of Germany

Filed Nov. 10, 1980, Ser. No. 205,550
Claims priority, application Fed. Rep. of Germany, Dec. 20, 1979, 2951372
Int. Cl.³ F01B 19/00; F16J 3/02
U.S. Cl. 92—99 6 Claims

1. A movable wall for a vacuum brake booster operated on by a differential of pressure to provide an increased brake force comprising:

a rigid, non-flexible metallic diaphragm plate including a first portion extending in a first direction substantially parallel to a longitudinal axis of said booster having a first diameter, a second portion extending in a second direction opposite to said first direction substantially parallel to said axis having a second diameter greater than said first diameter and a third portion extending substantially radially between adjacent ends of said first and second portions, said third portion containing therein a plurality of openings for weight reduction and material savings;

strap members disposed between said openings and extending in a radial direction to absorb forces acting on said movable wall;

a flexible diaphragm disposed in a continuously abutting relationship with the outer surface of said first and second portions and a continuously parallel overlying relationship with one surface of said third portion covering said plurality of openings, said one surface of said third portion being a continuation of said outer surface of said first and second portions and said diaphragm is subjected to a higher of two pressures providing said differential of pressure directed only toward said one surface of said third portion; and

means disposed between said one surface of said third portion and said diaphragm to prevent said diaphragm squeezing into said openings.

4,339,991

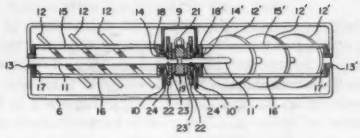
WIND CONTROL APPARATUS FOR AIR CONDITIONER

Tetsumasa Asano; Mitsuhiro Fujimoto, and Ryuichi Mizukawa, all of Himeji, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Sep. 4, 1980, Ser. No. 184,170
Claims priority, application Japan, Sep. 13, 1979, 54-118584
Int. Cl.³ F24F 13/10
U.S. Cl. 98—40 VM 1 Claim

1. A wind control apparatus for an air conditioner which comprises a pair of first wind-deflection plates for changing the direction of wind in a first axial direction by manual operation independent each other; a pair of second wind-deflection plates for changing the direction of wind periodically in a second axial direction; a driving means; and a phase adjusting means placed between each of the second wind-deflection plates and the driving means so as to selectively change the phase of wind direction by manual operation,

wherein said phase adjusting means comprises drive transmission coupling means and means adapted for overriding said coupling means while said driving means is operating,



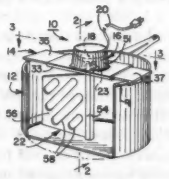
said drive transmission coupling means comprising a friction coupling and said means adapted for overriding comprising means for selectively moving one of said second wind deflection plates and said drive means while the other of said second wind deflection plates is held stationary.

4,339,992

STIRRING APPARATUS

Elaine J. Kurland, 5711 S. Albany, Chicago, Ill. 60629

Filed Sep. 29, 1980, Ser. No. 191,891
Int. Cl.³ B01F 7/16
U.S. Cl. 99—348 10 Claims



1. In stirring apparatus adapted to be mounted on an open-top container for dispersing materials contained therein, said container having a bottom wall, the arrangement comprising:

a support brace adapted to extend across the top portion of the container over its open top;

motive means fixedly mounted on said brace and having depending connector means drivingly attached thereto;

a downwardly depending paddle drivingly connected to said connector means of said motive means for extending into the interior of the container and revolving therewith, said paddle including an upright shaft portion attached to said connector means and extending directly downwardly into said container, said paddle further including a flat flexible blade, said blade extending downwardly from said connector means into engagement with the bottom wall of the container, said blade extending radially from said shaft portion; and

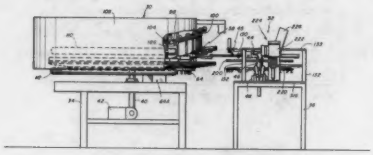
said support brace being adjustable longitudinally so that said brace can fit over different size container openings, said support brace further including securing means for attaching releasably said brace to said container, said support brace including a first central member having said motive means centrally disposed thereon, second and third rim engageable members connected telescopically to opposite ends of said first member to enable the length of said brace to be adjusted longitudinally, at least one of said members being a flat plate, said shaft portion of said blade being connected drivingly to said motive means to revolve the blade about the vertical axis of said shaft portion for dispersing the contents of the container and to sweep the bottom wall of the container.

4,339,993

FORTUNE COOKIE MACHINE

Yongsik Lee, 162 Winter St., Weston, Mass. 02193

Filed Apr. 18, 1980, Ser. No. 141,371
Int. Cl.³ A47J 37/00
U.S. Cl. 99—354 29 Claims



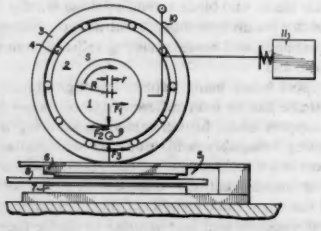
1. A machine for baking and forming fortune cookies comprising:
- a rotatable turret carrying a plurality of griddles for baking a flat cookie blank,
- means for rotating the turret to move each of the griddles through a plurality of stations, one of said stations being suitable for depositing batter in each griddle as each passes through said station, a second station having stripping means for removing the cookie blanks from the griddle, and baking means in the form of an oven for baking cookie blanks as the griddles move from the first to the second station,
- a second turret having a plate with a plurality of cookie blank supports,
- means for rotating said second turret to sequentially align the cookie blank supports with the stripping means so that each support may receive a cookie blank stripped from a griddle in the second station of the first recited turret,
- a fortune paper slip depositing mechanism mounted adjacent the second turret for depositing a slip on each flat cookie on the cookie supports of the second turret,
- fortune cookie forming means mounted adjacent the second turret for folding each cookie about the slip,
- and means for removing the formed cookie from the second turret.

4,339,994

MACHINE FOR STAMPING LICENSE PLATES

Serge Crasnianski, Meylan, and Louis Soriano, Seyssinet Pariset, both of France, assignors to KIS France, Frenoble, France

Filed Mar. 10, 1981, Ser. No. 242,170
Claims priority, application France, Sep. 21, 1979, 79 23563; European Pat. Off., Feb. 19, 1981, 814200226
Int. Cl.³ B41F 1/07
U.S. Cl. 101—4 11 Claims



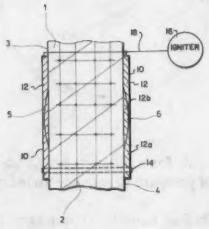
1. An automatic license plate stamping machine, comprising:
- a frame;
- a drive shaft mounted on the frame;
- a motor connected to the drive shaft;
- a set of punch and die stamping means; and
- a clutch system connecting the drive shaft to the punch and die stamping means, said clutch system comprising:
- a rotary system formed by a cam race mounted idle on the drive shaft and compressing the die stamping means in the course of its rotation due to its automatic locking onto the shaft.

4,339,995

METHOD FOR DESTROYING STRUCTURES SUCH AS CONCRETE WALLS

Ernst H. Jager, Schrobenhausen, Fed. Rep. of Germany, assignor to Messerschmitt-Bolkow-Blohm GmbH, Fed. Rep. of Germany

Filed Jan. 31, 1980, Ser. No. 117,097
Claims priority, application Fed. Rep. of Germany, Feb. 6, 1979, 2901338
Int. Cl.³ F42B 1/02
U.S. Cl. 102—310 3 Claims



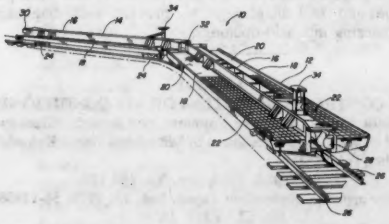
1. A method of explosively destroying a concrete wall comprising placing an explosive blast plate on each opposite side of the wall to be destroyed and arranging them in opposing relationship and directly opposite each other, and exploding the opposing plates sequentially in time with a predetermined time delay to cause the generation of shock waves penetrating into the wall from each side thereof, so that the shock waves collide in the interior of the wall whereby said shock waves collide at a location predetermined mainly by said time delay.

4,339,996

ARTICULATED RAILWAY CAR

Rene H. Brodeur, 2108 Beechwood Ave., Wilmette, Ill. 60091; Boris S. Terlecky, 234 Lippencott La., Fox Lake, Ill. 60020; Ronald P. Sellberg, 5 S. 649 Wright, Naperville, Ill. 60540, and William R. Halliar, 942 Pearl St., Whiting, Ind. 46394

Filed Jul. 23, 1979, Ser. No. 59,773
Int. Cl.³ B61D 17/00; B61F 1/02, 5/38; B61G 5/02
U.S. Cl. 105—3 7 Claims



1. An articulated rail car unit for transporting wheeled vehicular trailers comprising,
- at least two car bodies having forward and rearward ends, each formed of a central spine and having outwardly directed tire support means and a fifth wheel mounted adjacent one end,
- a semi-permanent coupling connecting the rearward end of

one of said car bodies to the forward end of another of said car bodies,

disengageable couplings respectively mounted on the forward end of the first of said car bodies and the rearward end of the last of said car bodies,

trucks at the forward and rearward ends of each said car body, each such truck comprising two wheels joined by a single axle, a frame supported on said wheels and axles and defining four spaced apart hanger flanges, each said truck including a pair of cross members parallel to the axle and supporting said car body, and pairs of hanger members directly connected between a pair of said hanger flanges and each one of of said cross members.

4,339,997

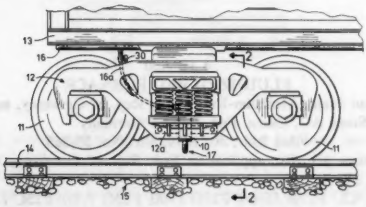
AUTOMATIC EMERGENCY ACTIVATED RAILWAY BRAKES

David T. Chiles, 1270 E. Main, American Fork, Utah 84003

Filed Jun. 28, 1980, Ser. No. 155,137

Int. Cl.³ B61H *11/02, 13/00;* **B61L** *3/00*

U.S. Cl. 105—216 **10 Claims**



1. A railroad car which will automatically stop a railroad train in which it is included upon derailment of the car, comprising in combination with a railroad car structure having wheel trucks and a train pipe for connection with the air brake train line of a railroad train, air release devices operatively connected with the train pipe and positioned in association with respective wheel trucks of the car structure, said air release devices including respective activators therefor normally positioned under the influence of pressure air at a safe rail-clearance level above the corresponding rail of a railroad track upon which the railroad train is adapted to run but so as to drop with any respectively relevant derailment-drop of the wheel truck to activating engagement with the corresponding rail of the railroad track, and including respective means for automatically raising said activators a sufficient distance above the normal running positions thereof to clear retarder devices in a railroad retarder yard when operating air pressure in the train pipe is lacking.

4. Apparatus for automatically stopping a railroad train upon derailment, comprising an air release device adapted to be operatively connected with the air brake train line of a potentially derailable car of the train and to be positioned in association with a set of the wheels at a side of a wheel truck of the car, said air release device being an air release valve including an activator therefor adapted to be normally positioned under the influence of air pressure in said train line at a safe rail-clearance level above the corresponding rail of the railroad track upon which the car is positioned but so as to drop with any relevant derailment-drop of a wheel of the said set of wheels to activating engagement with said corresponding rail of the railroad track, said air release valve comprising a valve body adapted to have its upper end connected to the train pipe in air flow communication therewith and to be secured to the wheel truck, said activator having a hollow valve stem whose upper end is closed and whose upper end portion is positioned in said valve body so as to be movable upwardly and downwardly therewithin, said valve stem having a laterally-positioned exhaust port adjacent to its closed upper end; an air-sealing piston slidable within the valve body on the upper portion of the valve stem for closing said exhaust port when both piston and valve stem are forced down to normal travel positions by air pressure from the train pipe; and stop means within the valve body for limiting upward travel of the piston upon activation of said valve stem on derailment, so said valve stem will travel upwardly relative to said piston and expose said exhaust port for release of train pipe air, there being at least one exhaust port in the hollow stem outside of the valve body.

10. In combination with a railroad car having wheel trucks with sets of wheels at opposite sides thereof and a train pipe for connection with the air brake train line system of a railroad train, apparatus for stopping the train upon derailment of a wheel of a wheel truck of the railroad car; comprising an air release device adapted to be operatively connected with the air brake train line of a potentially derailable car of the train and to be positioned in association with a set of the wheels at a side of a wheel truck of the car, said air release device being an air release valve including an activator therefor adapted to be normally positioned under the influence of air pressure in said train line at a safe rail-clearance level above the corresponding rail of the railroad track upon which the car is positioned but so as to drop with any relevant derailment-drop of a wheel of the said set of wheels to activating engagement with said corresponding rail of the railroad track, said air release valve comprising a valve body adapted to have its upper end connected to the train pipe in air flow communication therewith and to be secured to the wheel truck, said activator having a hollow valve stem whose upper end is closed and whose upper end portion is positioned in said valve body so as to be movable upwardly and downwardly therewithin, said valve stem having a laterally-positioned exhaust port adjacent to its closed upper end; an air-sealing piston slidable within the valve body on the upper portion of the valve stem for closing said exhaust port when both piston and valve stem are forced down to normal travel positions by air pressure from the train pipe; and stop means within the valve body for limiting upward travel of the piston upon activation of said valve stem on derailment, so said valve stem will travel upwardly relative to said piston and expose said exhaust port for release of train pipe air, there being at least one exhaust port in the hollow stem outside of the valve body.

4,339,998

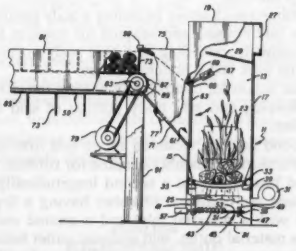
FUEL LEVEL INDICATOR

James Finch, Roxbury, N.Y. 12474

Filed Apr. 25, 1980, Ser. No. 143,762

Int. Cl.³ F23N *5/18*

U.S. Cl. 110—186 **2 Claims**



1. A fuel level indicator for use in a heating unit for burning fuel, said fuel level indicator comprising:

a grate for supporting fuel, said grate having openings therein to permit the burnt fuel to pass through them;

an axle rotatably mounted in said heating unit and rigidly affixed to said grate along one edge of the grate, one end of said axle extending outside said heating unit;

a stop secured to said heating unit to support the edge of the grate opposite from the edge rigidly affixed to the axle;

an arm extending at right angles generally vertically downwardly from the end of said axle outside said heating unit;

a mounting plate secured to the outside of said heating unit, said mounting plate having an opening therein;

a tensioning rod with one end threaded and being slidably mounted in said opening;

a spring generally horizontally oriented and connected at one end to the end of said arm remote from said axle and at the other end to said tensioning rod, said tensioning rod including means for increasing the tension in said spring;

an electrical switch means mounted adjacent said arm and on the opposite side of said arm as said spring, said electrical switch means being open when said arm presses against said electrical switch means and being closed when said spring forces said arm away from said electrical switch means;

electrical circuit means connected to said electrical switch means to provide an electrical signal when said electrical switch means is closed; and

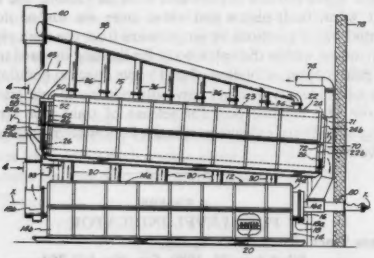
a conveyor means adjacent said heating unit for feeding fuel to said heating unit, said heating unit having an opening therein adjacent said conveyor means.

4,339,999

COMBINATION REFUSE PYROLYSIS AND MOISTURE REDUCTION APPARATUS

William M. Fio Rito, 12650 Mantilla Rd., San Diego, Calif. 92128, and Ralph E. Kidd, 2042 Clark Ave., Long Beach, Calif. 90808

Filed May 13, 1981, Ser. No. 263,069
Int. Cl.³ F23G *5/06*
U.S. Cl. 110—226 **7 Claims**



1. An apparatus for pre-treating and then controllably pyrolyzing waste materials and recovering useful energy producing materials and chemical by-products therefrom, comprising:

(a) a first housing;

(b) a combustion chamber including a body portion mounted within said housing and adapted for rotation about a first longitudinally extending axis, said body portion having a material inlet and a material outlet;

(c) burner means for controllably heating the interior of said first housing and said body portion of said combustion chamber;

(d) a second housing mounted above said first housing;

(e) a pre-treatment chamber adapted for rotation within said second housing about a second longitudinally extending axis, said pre-treatment chamber having a first end provided with a material inlet and a second end provided with a material outlet, said material outlet being operably interconnected with said material inlet of said body portion;

(f) heat transfer means interconnecting said interior of said first housing and said interior of said second housing for controllably transferring heat therebetween;

(g) a first fixed material receiving means disposed proximate the first end of said pre-treatment chamber, said means including a material inlet duct in communication with said material inlet of said rotatable pre-treatment chamber and further including first sealing means for sealably interconnecting said material inlet duct and said material inlet of said pre-treatment chamber;

(h) a fixed material transfer duct disposed proximate said second end of said rotatable pre-treatment chamber said transfer duct being in communication with said material outlet of said rotatable pre-treatment chamber and also being in communication with said material inlet of said combustion chamber; and

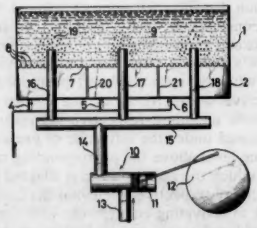
(i) said first sealing means includes an end plate adapted to sealably engage said first end of said pre-treatment chamber, said first end plate having a central opening therein adapted to communicate with said material inlet of said pre-treatment chamber and said first sealing means further includes biasing means for continuously urging said end plate into sealable contact with said first end of said pre-treatment chamber.

4,340,000

FLUIDIZED BED FURNACE

Helmut Hein, Mulheim-Ruhr, Fed. Rep. of Germany, assignor to Steag AG, Essen, Fed. Rep. of Germany

Filed Mar. 30, 1979, Ser. No. 25,365
Claims priority, application Fed. Rep. of Germany, Apr. 3, 1978, 2814239
Int. Cl.³ F27B *15/00*; F23D *1/00*; F23G *7/00*; F23C *11/02*
U.S. Cl. 110—245 **3 Claims**



1. A fluidized bed furnace for coarse grained coal feed material comprising:

a vessel having heat resistant walls and an inflow plate extending between said walls to form a plenum extending entirely across the bottom of the vessel, said plenum and inflow plate being formed into a plurality of rows of adjacent rectilinear zones;

air nozzles in said inflow plate for providing an air feed to maintain a fluidized bed of comparatively inert material in said vessel above said plate;

a plurality of coal supply pipes extending through said inflow plate into said vessel beneath said fluidized bed and above said inflow plate, one of said coal supply pipes being located in each of said zones, said coal supply pipes being connected into zone groups so located on the inflow plate as to permit part load operation of the furnace while maintaining fluidized bed temperatures, said pipes terminating in the fluidized bed below its upper boundary, said pipes being sized to supply coarse grained coal to the fluidized bed; and

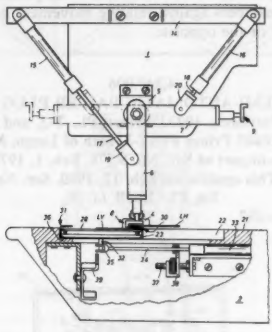
fuel supply means selectively communicating with said groups of coal supply pipes for forcing said coal through said pipes.

4,340,001

SEWING MACHINE WITH WORK GUIDING DEVICE

Erich Willenbacher, Kaiserslautern, Fed. Rep. of Germany, assignor to Pfaff Industriemaschinen GmbH, Fed. Rep. of Germany

Filed Jun. 13, 1980, Ser. No. 159,394
Claims priority, application Fed. Rep. of Germany, Jun. 29, 1979, 2926306
Int. Cl.³ D05B *35/04*
U.S. Cl. 112—143 8 Claims



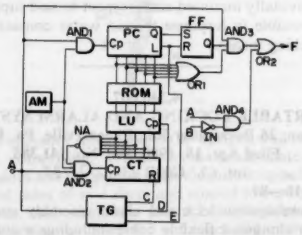
1. A work guiding device for a sewing machine having a sewing needle for joining two overlapping work plies at border areas thereof and folding back at least one border of one work ply comprising, a movable support, first and second U-shaped edge guides connected to said support and facing opposite directions, support drive means connected to said support for moving one of said edge guides at a time into the vicinity of the needle, first and second guide rules each movable into the vicinity of the needle and each forming with each of said edge guides respectively a substantially closed channel for the work plies, and drive means connected to said first and second guide rules for selectively moving said guide rules into the vicinity of the needle.

4,340,002

UPPER SHAFT PHASE DETECTING SYSTEM FOR SEWING MACHINES

Susumu Hanyu, and Hideaki Takenoya, both of Hachioji, Japan, assignors to Janome Sewing Machine Co. Ltd., Tokyo, Japan

Filed Aug. 28, 1980, Ser. No. 182,317
Claims priority, application Japan, Jun. 9, 1979, 54/113498
Int. Cl.³ D05B *3/02*
U.S. Cl. 112—158 E 1 Claim



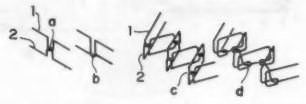
1. An upper shaft phase detecting system for a sewing machine having an electronic memory storing stitch control signals which are sequentially read out per rotation of the upper shaft of the sewing machine to control the stitch forming instrumentalities of the sewing machine, comprising means operated in synchronism with the upper shaft to detect the rotation phases of the upper shaft in four divisions, means (AM, CT) for detecting the rotation speed of the upper shaft, and means (ROM, PC) operated in association with the rotation speed of the upper shaft to shift the rotation phase divisions of the upper shaft so as to control the operation of the stitch forming instrumentalities.

4,340,003

LOCK STITCHING SEWING MACHINE WITH A THREAD TIGHTENING DEVICE

Susumu Hanyu, Hachioji; Kazumasa Hara, Tama, and Mikio Koike, Oume, all of Japan, assignors to Janome Sewing Machine Co. Ltd., Tokyo, Japan

Filed Jun. 12, 1980, Ser. No. 158,779
Claims priority, application Japan, Jun. 20, 1979, 54/76721
Int. Cl.³ D05B *57/08*
U.S. Cl. 112—191 7 Claims



1. In a sewing machine having a main shaft adapted to vertically reciprocate a needle bar with a needle carrying an upper thread and arranged to penetrate a fabric to be sewn, a loop taker carrying a lower thread, a drive shaft operatively connected to the main shaft for driving the loop taker, a feed dog disposed above said loop taker, and a thread tightening device, the combination comprising a group of pattern cams operatively connected to the main shaft for rotation at a reduced speed; pattern cam selecting means including at least one follower adapted to engage with a selected one of said pattern cams; means for operatively connecting the selected pattern cam to the needle bar; means incluuding a rockingly movable shaft for reciprocating the feed dog in a horizontal plane; means for controlling the vertical movement of the feed dog, said controlling means including a control cam and a rotatable shaft operatively connected to the main shaft, said control cam being axially slidably mounted on said rotatable shaft but prevented from relative rotation thereto; lower thread tightening means including an element arranged for vertical reciprocating movement in a timed relation with the feed dog by said rotatable shaft, said element engaging the lower thread during the stitching operation of the sewing machine to draw a predetermined amount of the lower thread and tighten the stich to be formed in accordance with the axial position thereof; thread tension adjusting means including an adjusting cam with parts corresponding to said pattern cams and operatively connected with said pattern cam selecting means, a dial to positively set in a timed relation said adjusting cam with the selected pattern cam and transmission means including a follower engaging said adjusting cam, links operatively connected to said control cam, said links displacing said control cam axially relatively to said rockingly movable shaft in response to a set position of said adjusting cam.

4,340,004

HIGH-SPEED SHIP

Yutaka Kanei, 15-3, Tsushimaenishi-machi, Neyagawa, Osaka, Japan (572)

Filed Mar. 28, 1978, Ser. No. 891,120
Claims priority, application Japan, Mar. 30, 1977, 52-36778; Nov. 26, 1977, 52-141908
Int. Cl.³ B63B *1/34*
U.S. Cl. 114—67 A 9 Claims

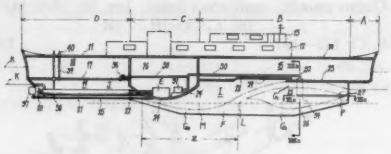
1. A modified hull for a high speed ship, reducing drag and enabling travel at increased speeds, said ship's hull comprising:
a front bottom plating;

a rear bottom plating positioned at a lower level relative to the waterline of the hull than said front bottom plating;

an intermediate bottom plating connecting said front and rear bottom platings;

side plates which are secured to opposite sides of said front bottom plating, said side plates extending vertically downward therefrom to a position slightly lower than said rear bottom plating, said side plates cooperating for forming a water flow passage therebetween;

a water dividing member which is secured to and extends transversely between said opposite side plates in the front portion of said flow passage for dividing the water flowing through said passage during navigation into an upper and a lower stream;



a compressor mounted within said hull; and

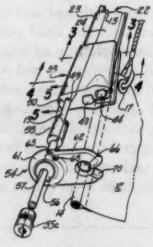
an air duct extending throughout the length of and within said ship hull, said air duct being connected to said compressor, being supplied with compressed air, and having air supply outlets in the bottom of said ship hull along said front bottom plating and within the rear portion of said dividing member for creating a high pressure air front holding space between said upper and lower streams and an intermediate high pressure air holding space between said front bottom plating and said upper stream, and a ballast tank in a rear portion of said hull for dischargably containing water for keeping said ship in balance when the buoyance of said front portion of said hull is increased by air in and intermediate high pressure air holding spaces.

4,340,005

LUFF FEEDER ASSEMBLY FOR GROOVED JIBSTAY FOILS

Rolf E. Lagerquist, 1505 S. Oak, Lake City, Minn. 55978

Filed Sep. 5, 1980, Ser. No. 184,574
Int. Cl.[3] B63H *9/04*
U.S. Cl. 114—105 **18 Claims**



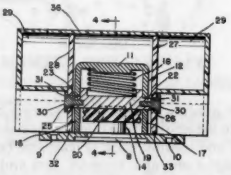
9. A luff feeder adapted to be attached to the lower end of a grooved foil for a sailboat, the combination of a body member and a cover member removably assembled together by sliding movement in one direction and cooperating at an assembled position to define a funnel having an opening for receiving the luff of a sail readily therein, the funnel opening extending upwardly through the funnel for sliding passage of the luff and terminating at an upper end adapted to be aligned with the lower end of an opening in the grooved foil, said members also defining an upwardly opening recess for snugly receiving a lower end portion of the grooved foil, said members having parallel mating guideways extending in said direction, said guideways meeting in mutually supporting sliding relationship for guiding said relative sliding movement in said direction and including separate pairs of parallel portions abutting at the assembled position for limiting relative movement of the members in orthogonal second and third directions respectively normal to said one direction, said members also having spline means interfitting at the assembled position for limiting relative movement of the members in directions opposite said second and third directions, and means passing through said recess and interengaging said members at the assembled position for interlocking the members against relative movement in either said one direction or the opposite.

4,340,006

SEMI-AUTOMATIC BAILER PLUG

William C. Patriarca, 10232 Prince Pl., T-2, and Leonard J. McGraw, 10247 Prince Pl., T-3, both of Largo, Md.

Continuation-in-part of Ser. No. 8,576, Feb. 1, 1979, Pat. No. 4,198,918. This application Feb. 12, 1980, Ser. No. 120,845
Int. Cl.[3] B63B *13/00*
U.S. Cl. 114—197 **5 Claims**



1. A bailer plug control assembly for boat transoms having a bail hole for discharging bilge water from a boat comprising:

support means for mounting said bailer plug assembly in alignment with a boat transom bail hole;

a bail plug guide means connected to said support means;

a bail plug mounted in said bail plug guide means for movement between a closed position in which said bail plug seals said bail hole and an open position in which said bail plug permits the discharge of bilge water through said bail hole;

spring means coupled to said bail plug for driving said bail plug along said guide means toward said closed position to seal said bail hole;

locking means for holding said bail plug in said open position against the driving action of said spring means when said boat transom is out of the water; and

float means responsive to water contact accompanying the launching of the boat transom for releasing said locking means to permit said spring means to drive said bail plug into said closed position to seal said bail hole, said float means being pivotally mounted with respect to said support means and pivotable in response to said water contact to release said locking means.

4,340,007

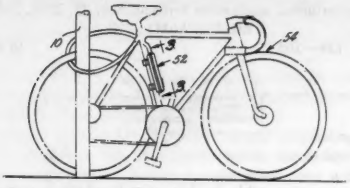
PORTABLE LOCKING AND ALARM SYSTEM

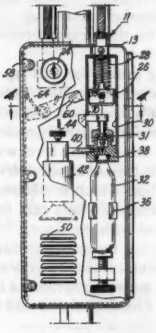
Paul Hogan, 26 Buckwalter Rd., Phoenixville, Pa. 19460

Filed Apr. 18, 1980, Ser. No. 141,385
Int. Cl.[3] G08B *13/12, 13/22*
U.S. Cl. 116—81 **3 Claims**

1. A combination lock and alarm assembly comprising a casing, an elongated flexible cable including a core member detachably secured at one end to the casing by locking means and securely mounted at its other end to the casing, an alarm system in the casing including a reservoir for a fluid under pressure normally sealed by a diaphragm, means adapted to pierce the diaphragm in response to predetermined tampering conditions, a fluid actuated audio alarm and means connecting said audio alarm to said pressurized fluid reservoir whereby

upon puncturing of said diaphragm, pressurized fluid is discharged to actuate said audio alarm, said casing comprising two pivotally mounted sections and including a hammer pivot-





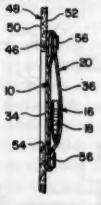
ally mounted in one of said sections and engageable with the other of said sections and including spring biasing means operable to pivot said hammer upon disengagement from said other casing section to actuate said piercing member.

4,340,008

TILT INDICATOR FOR SHIPPING CONTAINERS

Ralph R. Mendelson, 3137 Fairmount Blvd., Cleveland Heights, Ohio 44118

Filed Sep. 22, 1980, Ser. No. 189,797
Int. Cl.³ G08B *5/00*
U.S. Cl. 116—215 **19 Claims**



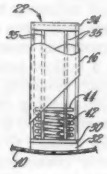
1. A tilt indicator mountable on an upright wall of a shipping container comprising, a sheet of stainable material having opposite sides and peripheral edge means, receptacle means on one of said sides of said sheet and spaced inwardly from said edge means, said receptacle means being separate from said sheet and having an upper end and inner and outer receptacle walls with respect to said one side of said sheet, means fastening said inner receptacle wall to said one side of said sheet for said receptacle means to be mounted on said sheet outwardly adjacent said one side, a flowable material in said receptacle means capable of staining said sheet, said receptacle means including means to provide an outlet at said upper end through which said flowable material can flow onto said sheet upon tilting said shipping container, and enclosure means of a transparent plastic film of material removably receiving and completely surrounding and enclosing said sheet and receptacle means, said enclosure means confining said flowable material therein and being mountable on said upright container wall to support said sheet and receptacle means thereon.

4,340,009

MEANS FOR PROTECTING UNDERGROUND TANKS FROM DAMAGE BY DIPSTICKS

Gerald G. Greaves, Jr., Houston, Tex., assignor to Owens-Corning Fiberglas Corporation, Toledo, Ohio

Filed Sep. 18, 1980, Ser. No. 188,196
Int. Cl.³ G01F *23/00*
U.S. Cl. 116—227 **10 Claims**



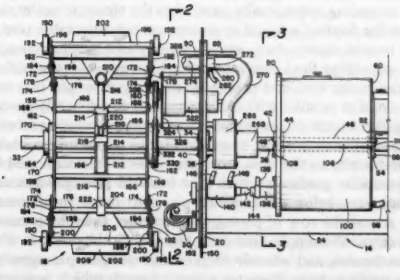
1. For use with a cyclindrical underground storage tank **(10)** having an opening in an upper wall portion thereof and an inner fill tube **(16)** in communication with the opening, the inner fill tube extending downwardly from the opening for a greater portion of the length of an inside diameter of the tank and having a lower end portion spaced from a lower wall portion of the tank, means **(22, 24, 26, 28)** for protecting the lower wall portion of the tank from damage by a dipstick **(20)**, said protecting means being adapted to be dropped down the inner fill tube into a position wherein it is supported by the lower wall portion of the tank and comprising an open-top, generally cylindrical housing including a bottom plate **(30, 34, 35, 36, 38, 40)**, a resilient member **(42, 46)** inside the housing adjacent the bottom plate, and a striking plate **(44)** disposed in the housing adjacent the resilient member and being reciprocable within the housing along with an upper end portion of the resilient member upon the striking of the plate by a dropped dipstick.

4,340,010

INTERNAL GIRTH COATING APPARATUS

Robert J. Hart, Tulsa, Okla., assignor to Commercial Resins Company, Tulsa, Okla.

Filed Apr. 13, 1981, Ser. No. 253,702
Int. Cl.³ B05C *7/02, 19/00*
U.S. Cl. 118—306 **5 Claims**



1. An internal pipe coating apparatus for coating the interior surfaces of uncoated weld joints in an otherwise internally

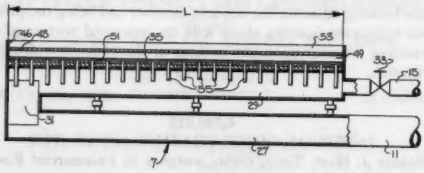
coated pipeline comprising a frame, means for moving the frame longitudinally along the interior of said pipeline, said frame having a forward end constituting a coating section adapted to be disposed in the area of an uncoated weld joint, said coating section having a shaft adapted to be disposed generally along the longitudinal center line of the pipeline and for rotatably mounting a coating assembly thereon, a coating assembly comprising an arm means mounted for rotation on said shaft and extending radially outward from said shaft on opposite sides thereof and terminating in a pair of opposite ends, link means connected to each opposite end of said arm means, each link means having an inner end pivotally connected to an opposite end of said arm means and having an outer end to which is pivotally connected a triangularly shaped mounting means, each mounting means being in the shape of an obtuse isosceles triangle having a single obtuse angle and a pair of smaller acute angles, each mounting means being pivotally connected to said link means at the apex of the obtuse angle, a wheel mounted on each mounting means at the location of each acute angle thereof, a hollow powder applicator head operatively connected to each mounting means, each applicator head having a dispensing opening oriented in a direction away from said shaft, a hose connected to each applicator head for supplying an air-powder mixture to said applicator head, expansion means operatively connected between center of each link means and said arms means adjacent said shaft for urging said link means outwardly away from said shaft, and means for rotating said arm means about said shaft.

4,340,011

FLOW DISTRIBUTOR FOR A LIQUID FILM DISCHARGING DEVICE

Douglas Wahren, Appleton, Wis., and Rolf A. L. Akesson, Karlstad, Sweden, assignors to Aktiebolaget Karlstads Mekaniska Werkstad, Karlstad, Sweden

Filed Dec. 9, 1980, Ser. No. 214,773
Claims priority, application Sweden, Dec. 17, 1979, 7910358
Int. Cl.³ B05C *3/18*
U.S. Cl. 118—410 **9 Claims**



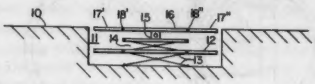
1. A flow distributor device for producing from an elongate outlet slot of substantially constant width along its length, a flowing film of liquid with a substantially uniform velocity over the length of the slot, said device comprising a supply duct extending substantially parallel to the elongate outlet slot, means for feeding a liquid at a constant but adjustable rate of flow to said supply duct, and a plurality of elongate passageways providing fluid communication between said supply duct and the outlet slot, said passageways being arranged in a row connected in parallel with each other and equidistantly spaced along the length of the supply duct, said passageways being located sufficiently close to each other to avoid unacceptable nonuniformity in the flow from the outlet slot, occasioned by local velocity gradients which arise from the passageways, said passageways being dimensioned so as to make the pressure drop across the row of passageways greater than the pressure drop across the supply duct and greater than the pressure drop across the slot, and wherein each of said elongate passageways has a uniform bore diameter along a length which is several times greater than the bore diameter, and wherein said elongate passageways have differing lengths along the length of the supply duct for providing a more uniform distribution of flow along the length of the elongate outlet slot.

4,340,012

OPERATION TABLE FOR BIG ANIMALS

Erik E. Gustafson, Djurgårdsgatan 15, Mariefred, Sweden

Filed Sep. 23, 1980, Ser. No. 189,767
Claims priority, application Sweden, Sep. 25, 1979, 7907923
Int. Cl.³ A61D *3/00*
U.S. Cl. 119—103 **13 Claims**



1. An operation table for big animals which is stored in a recess in a floor so as to be level with the floor comprising:

a flat foundation of slightly smaller dimensions than the horizontal dimensions of the recess;

a flat table intended for the surgical operation located above said foundation;

a foundation moving means for moving said foundation at least from a lower position within the recess to an upper position substantially level with the floor; and

a table moving means for selectively moving said table from a loading position substantially level with the floor where said foundation is in the lower position within the recess to an operating position which is adjusted to a convenient height for the operation where said foundation is in the upper position level with the floor,

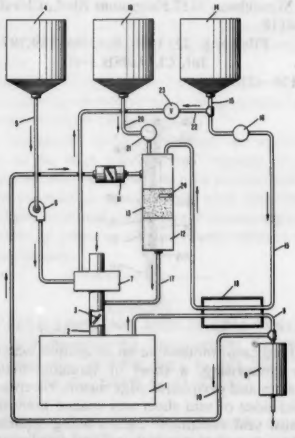
said foundation moving means comprising a hydraulically operated scissor device located below said foundation and said table moving means comprising a hydraulically operated scissor device located above said foundation.

4,340,013

MEANS AND PROCEDURE FOR THE OPERATION OF COMBUSTION ENGINE

Olle B. Lindstrom, Lorensviksv 14, S-18363 Täby, Sweden

Division of Ser. No. 885,324, Mar. 10, 1978, Pat. No. 4,244,328.
This application Sep. 8, 1980, Ser. No. 184,884
Claims priority, application Sweden, Mar. 17, 1977, 7703011
Int. Cl.³ F02B *43/08*
U.S. Cl. 123—3 **6 Claims**



1. In a combustion engine employing a fuel comprising gasoline and methanol and having exhaust gas recirculation, the improvement comprising;

(a) means for mixing a feed stream comprising methanol in a fixed amount selected from within the range of about 5 to 35 percent by volume based on the amount of gasoline supplied to the combustion engine with a water vapor-containing exhaust gas stream in a first zone;

(b) means within said first zone for catalytically steam reforming said methanol-containing feed stream in the presence of said exhaust gas stream to form a gaseous mixture comprising hydrogen and carbon monoxide, whereby at least a portion of the water vapor and energy required for said steam reforming is provided by said exhaust gas stream;

(c) means disposed adjacent to said first zone for combining said gaseous mixture of hydrogen and carbon monoxide with a mixture of air and gasoline;

(d) means operatively connected to said combining means for supplying the hydrogen/carbon monoxide/air/primary gasoline mixture to a combustion zone within said combustion engine;

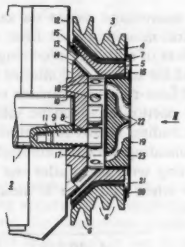
(e) means for combusting said mixture in said combustion zone to produce an exhaust gas comprising a reduced amount of noxious components and aldehydes.

4,340,014

VENTILATION BLOWER FOR A NOISE-SUPPRESSING ENCAPSULATED INTERNAL COMBUSTION ENGINE

Karl Kirchweger, Graz, Austria, assignor to Hans List, Graz, Austria

Filed Mar. 26, 1981, Ser. No. 247,746
Claims priority, application Austria, Apr. 18, 1980, 2115/80
Int. Cl.³ F01P *7/02*
U.S. Cl. 123—41.63 **5 Claims**



1. An internal combustion engine having a noise-suppressing encapsulation and a blower for ventilation of said encapsulation, comprising a drive wheel for driving auxiliary units, said drive wheel being connected to said blower, driven by the crankshaft of the engine, and consisting of two concentric parts, an outer part of said concentric parts being connected via at least one elastic member to an inner part of said concentric parts and said inner part being connected to one end of said crankshaft, said drive wheel further being arranged outside of said encapsulation, covering an opening for said crankshaft in an encapsulation wall, and having cooling air ducts arranged in said inner part thereof, each one of said cooling air ducts being so arranged as to run from an inlet end on the side opposite said opening to a exit end on the side adjacent said opening, said exit end having a greater spacing from the axis of said crankshaft than said inlet end although still lying within said opening, and wherein a cover is arranged on the side opposite said opening, connected to said outer part and covering said inner part, said cover having sound-isolated suction openings.

4,340,015

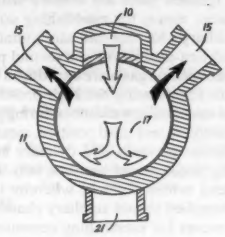
FRONT TRANSFER PORT SYSTEM

Fernando C. Gonzalez, 224 N. Myers St., Burbank, Calif. 91506

Continuation-in-part of Ser. No. 749,067, Dec. 9, 1976, abandoned. This application Aug. 7, 1978, Ser. No. 931,617
Int. Cl.³ F02B *33/04*
U.S. Cl. 123—73 R **3 Claims**

1. In a two-cycle engine comprising:

a crankcase; a cylinder; a piston reciprocable in said cylinder; an inlet to said crankcase; a transfer port from said crankcase to said cylinder; and a pair of exhaust ports from said cylinder; the improvement wherein said transfer port and said exhaust ports are located on the same side of said cylinder, with said exhaust ports angularly spaced at opposite sides of said transfer port; said transfer port having a larger angular extent than said exhaust ports and



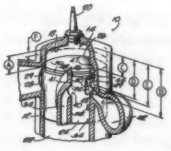
discharging gas onto said piston head between said exhaust ports; said exhaust ports being approximately at right angles and being defined by walls extending substantially parallel a distance at least equal to the width of the exhaust ports at the cylinder; said cylinder being unported at the side opposite to said transfer and exhaust ports.

4,340,016

TWO-STROKE INTERNAL COMBUSTION ENGINE AND METHOD OF OPERATION THEREOF

Josef Ehrlich, Near Berkhempsted, England, assignor to Outboard Marine Corporation, Waukegan, Ill.

Filed Sep. 5, 1980, Ser. No. 184,487
Int. Cl.³ F02B *33/04*
U.S. Cl. 123—73 R **11 Claims**



5. An internal combustion engine including a combustion chamber, an auxiliary chamber, a piston movable relative to said combustion chamber between top dead center and bottom dead center positions and relative to first, second, third, and fourth positions respectively spaced from said top dead center position at respectively greater distances, a source of a pressurized fuel-air mixture, a source of a pressurized gas, means for establishing communication between said auxiliary chamber and said source of pressurized gas during piston travel from said first to said second position, whereby pressurized gas is introduced into said auxiliary chamber, means for isolating the pressurized gas introduced into said auxiliary chamber during piston travel from said second position to said third position, means for establishing communication between said auxiliary chamber and said combustion chamber during piston travel between said third position and said bottom dead center position, whereby the pressurized gas supplied to said auxiliary chamber flows into said combustion chamber, and means for establishing communication between said combustion chamber and said source of pressurized fuel-air mixture during piston travel between said fourth position and said bottom dead center position, whereby the pressurized fuel-air mixture flows into combustion chamber from said fuel-air mixture source.

7. A two-stroke internal combustion engine comprising a cylinder, a crankcase extending from said cylinder, an auxiliary chamber, a piston movable relative to said cylinder between top dead center and bottom dead center positions and relative to first, second, third, and fourth positions respectively spaced from said top dead center position at respectively greater distances, whereby said crankcase is subject to cyclical conditions of relatively high pressure and low pressure, means for

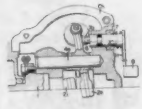
supplying a fuel-air mixture to said crankcase when said crankcase is subject to low pressure, a transfer passage communicating with said crankcase and communicable with said cylinder in response to said piston movement, means for igniting said fuel-air mixture in said cylinder when said piston is located generally adjacent to said top dead center position, whereby high pressure ignition gases are created within said cylinder above said piston, means for establishing communication between said auxiliary chamber and said cylinder during piston travel from said first position to said second position, whereby the high pressure ignition gases are introduced into said auxiliary chamber, means for isolating the high pressure ignition gases introduced into said auxiliary chamber during piston travel from said second position to said third position, means for reestablishing communication between said cylinder and said auxiliary chamber during piston travel between said third position and said bottom dead center position, whereby the high pressure ignition gases supplied to said auxiliary chamber flow into said cylinder, and means for establishing communication between said cylinder and said transfer passage during conditions of high pressure in said crankcase and during piston travel between said fourth position and said bottom dead center position, whereby the fuel-air mixture flows through said transfer passage into said cylinder.

4,340,017

STARTING DECOMPRESSION DEVICE FOR A FOUR CYCLE ENGINE

Yoshitaka Kato; Kiyotomi Maesaka, both of Wako; Seiichi Matsui, Tokyo, and Yoshitoku Iizuka, Urawa, all of Japan, assignors to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Jun. 10, 1980, Ser. No. 158,163
Claims priority, application Japan, Jun. 19, 1979, 54/77299
Int. Cl.³ F01L *13/08*
U.S. Cl. 123—182 **3 Claims**



1. In a starting decompression device for a four-cycle engine including an inlet valve and an exhaust valve for respectively opening and closing an inlet port and an exhaust port which ports are in communication with a combustion chamber and a valve-operating mechanism having an intake rocker arm and an exhaust rocker arm for controllably opening and closing said valves, said starting decompression device comprising:

a decompression cam member disposed adjacent said exhaust rocker arm and being movable between an operative position wherein said exhaust valve is opened halfway and an inoperative position wherein said exhaust valve is closed; and

a return spring for urging said decompression cam member towards said inoperative position;

the improvement wherein said exhaust rocker arm has a cam follower for camming engagement with said decompression cam member, and said decompression cam member has a cam apex which is placed in a position past a contact point of said decompression cam member with said cam follower when said decompression cam member is in the operative position.

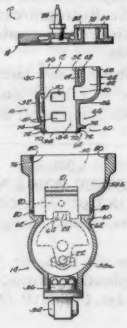
4,340,018

INTERNAL COMBUSTION ENGINE HAVING A WET-TYPE CYLINDER LINER AND PROCESS FOR MANUFACTURING SAME

J. David Kirk, Waukegan, Ill., assignor to Outboard Marine Corporation, Waukegan, Ill.

Filed Dec. 26, 1979, Ser. No. 106,490
Int. Cl.³ F02F *1/16*
U.S. Cl. 123—193 C **17 Claims**

2. An internal combustion engine comprising a liner including a cylindrical sleeve including a sidewall defining a bore having oppositely spaced ends, said sidewall having therein an exhaust port, and means defining an exhaust passage extending from said sleeve and communicating with said bore through said exhaust port, said exhaust passage including an outlet end portion extending outwardly said sidewall and axially toward one of said bore ends, a block portion including means defining an interior chamber having a liner-receiving portion accommodating the placement of said liner substantially wholly within the confines of said liner-receiving portion of said interior chamber and adapted to be connected with a source of



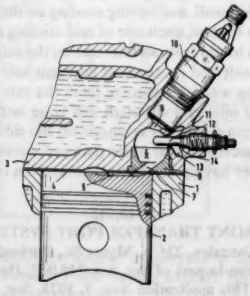
liquid coolant, assemblage means on said liner and on said block portion for mounting said liner substantially wholly within the confines of said liner-receiving portion of said interior chamber and for sealing said interior bore from communication with said liner-receiving portion of said interior chamber, and a head portion mounted on said block portion, said head portion including means for defining a passage having one end communicating with the atmosphere and an opposite end communicating with said outlet end portion of said liner exhaust passage when said liner is mounted in said interior chamber.

4,340,019

INTERNAL COMBUSTION DIESEL ENGINE

Konrad Barnert, Wolfsburg, and Ingolf Löhner, Brunswick, both of Fed. Rep. of Germany, assignors to Volkswagenwerk Aktiengesellschaft, Wolfsburg, Fed. Rep. of Germany

Continuation of Ser. No. 7,327, Jan. 29, 1979, abandoned. This application Dec. 23, 1980, Ser. No. 219,993
Claims priority, application Fed. Rep. of Germany, Feb. 7, 1978, 2805133
Int. Cl.³ F02B *3/02, 23/08*
U.S. Cl. 123—256 **7 Claims**



1. In an internal combustion diesel engine having a piston sliding in a cylinder, said cylinder closed by a cylinder head forming a main combustion chamber, and having a pre-combustion chamber arranged in the cylinder head and communi-

cating by a connecting passage with the main combustion chamber, a fuel injection nozzle projecting into said pre-combustion chamber, and a glow plug projecting into said pre-combustion chamber, the improvement wherein said engine includes auxiliary chamber means for storing oxygen during the initial period of combustion comprising an auxiliary chamber which is smaller than said pre-combustion chamber and communication means between said auxiliary chamber and said pre-combustion chamber including a nozzle-shaped aperature for introducing air contained in said auxiliary chamber into said pre-combustion chamber through said aperture, wherein the stored oxygen is drawn out of said auxiliary chamber, after ignition of the fuel-air mixture in the pre-combustion chamber is initiated, for combustion with remaining unburned fuel in said pre-combustion chamber.

4,340,020

GOVERNOR MECHANISM

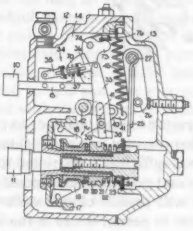
Laurence C. Caldicott, Watford; Alastair D. Cameron, and Georgs N. Felton, both of London, all of England, assignors to Lucas Industries Limited, Birmingham, England

Filed Oct. 29, 1979, Ser. No. 88,837

Claims priority, application United Kingdom, Nov. 11, 1978, 44176/78

Int. Cl.³ F02D *1/04*

U.S. Cl. 123—374 **8 Claims**



1. A governor mechanism for use with or forming part of a fuel injection pumping apparatus for supplying fuel to an internal combustion engine, the mechanism comprising:

a centrifugal weight unit which in use, is driven at a speed proportional to the speed of the associated engine,

a first resilient means acting against a member in opposition to the force exerted by said weight unit,

means for limiting the deflection of said first resilient means,

a second preloaded resilient means which defines a reaction member for said first resilient means,

the preload of said second resilient means being substantially equal to the force required to deflect the first resilient means to its maximum permitted extent whereby with increasing engine speed said opposition member is moved continuously against the action of said first and second resilient means,

a first lever pivotally mounted intermediate its ends for coupling to said opposition member,

means coupling one end of the first lever to said opposition member, so that the first lever is pivoted about its pivot upon movement of said opposition member,

further means connecting the other end of the first lever to a control member of the pumping apparatus,

manually adjustable means for varying the position of said pivot, whereby for a given position of said opposition member below the maximum speed of the engine, when the pivot is moved in one direction, the first lever will pivot in a direction which effects an increase in the amount of fuel supplied to the engine, and when the pivot is moved to the other direction, the lever will pivot in a direction which effects a reduction in the amount of fuel supplied to the engine,

extra means for adjusting the preload of said second resilient means and linkage means coupled to said extra means, as well as to said manually adjustable means whereby, when said linkage means is set to reduce the preload of said second resilient means, the pivot will be positioned such that said lever will be moved to a position to ensure a supply of fuel by the pumping apparatus,

said linkage means being operable from the exterior of the governor mechanism to reduce the preload of said second resilient means when it is required to operate the engine at a reduced speed with a varying load.

4,340,021

IGNITION ADVANCE ANGLE CONTROLLING DEVICE

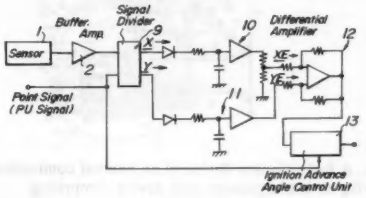
Katsunori Oshiage, and Mitsuhiko Ezoe, both of Yokosuka, Japan, assignors to Nissan Motor Company, Ltd., Yokohama, Japan

Filed May 21, 1980, Ser. No. 152,095

Claims priority, application Japan, May 25, 1979, 54-64624

Int. Cl.³ F02P *5/04*

U.S. Cl. 123—425 **4 Claims**



1. Apparatus for controlling the occurrence times of each ignition pulse of an internal combustion engine comprising

a sensor for detecting vibration produced by said engine, said sensor deriving an output signal including a background portion and a knock portion while the engine is knocking,

a signal splitter circuit for splitting the output signal of said sensor into a knocking portion signal and a background portion signal separate from the knocking portion signal,

a first means responsive to said knocking portion signal for deriving a first signal having a value commensurate with the intensity of the knocking detected by the sensor,

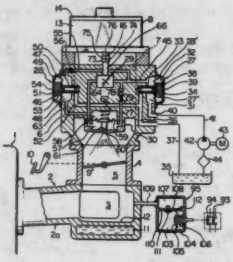
a second means responsive to said background portion signal for deriving a second signal having a value commensurate with the intensity of background vibrations detected by the sensor,

comparison means responsive to the first and second signals for deriving a comparison signal having a value commensurate with the relative magnitudes of the intensity of knocking detected by the sensor and of the intensity of background vibrations detected by the sensor, the signal splitter circuit including first and second switches for alternately coupling the output of the sensor to the first and second means in response to the sensor deriving the knock and background portions respectively, means for deriving an intermediate signal having an increasing magnitude as time progresses between each ignition pulse, the rate of increase of the intermediate signal being responsive to the time interval between adjacent ignition pulses so the rate of increase is an inverse function of the time interval, means responsive to the magnitude of the intermediate signal being in a first band between first and second predetermined amplitude levels for coupling the knock portion via the first switch to the first means while blocking coupling of the background portion via the second switch to the second means and responsive to the intermediate signal being in second bands outside of the first band for coupling the background portion via the second switch to the second means while blocking coupling of the knock portion via the first switch to the first means, and means for controlling the occurrence time of the ignition pulses in response to the value of the comparison signal.

4,340,022
FUEL INJECTION DEVICE OF AN INTERNAL COMBUSTION ENGINE

Masakazu Ninomiya, Kariya; Hideo Kiuchi, Hoi; Atsushi Suzuki, Kariya, and Nobuyuki Kobayashi, Toyota, all of Japan, assignors to Toyota Jidosha Kogyo Kabushiki Kaisha, Aichi, Japan

Filed Apr. 9, 1980, Ser. No. 138,734
Claims priority, application Japan, Jun. 7, 1979, 54-71962
Int. Cl.³ F02M *59/32*
U.S. Cl. 123—453 **14 Claims**



1. A fuel injection device of an internal combustion engine having an intake passage, said device comprising:
- a fuel reservoir;
- a fuel pump connected to said fuel reservoir;
- a fuel chamber having a fuel nozzle which opens into said intake passage;
- a fuel feed passage connecting said fuel pump to said fuel chamber;
- flow control means arranged in said fuel feed passage for controlling the flow of a fuel to feed the fuel into said fuel chamber in an amount which is directly proportional to the amount of sucked air flowing within said intake passage;
- first valve means having a constant pressure chamber arranged in said intake passage between said fuel pump and said flow control means for feeding the fuel at a constant pressure into said flow control means;
- detecting means for detecting an operating condition of the engine to produce a control signal when the engine is accelerated and before the completion of warm-up of the engine;
- a fuel bypass passage directly connecting said constant pressure chamber to said fuel chamber, and;
- normally closed second valve means arranged in said fuel bypass passage for opening said fuel bypass passage in response to said control signal when the engine is accelerated and before the completion of warm-up of the engine.

4,340,023
FUEL SUPPLY AND RETURN SYSTEM WITH BYPASS VALVE AND WATER PUMPOUT

John E. Creager, Linden, Mich., assignor to General Motors Corporation, Detroit, Mich.

Filed Jun. 23, 1980, Ser. No. 162,005
Int. Cl.³ B67D *5/60*
U.S. Cl. 123—510 **3 Claims**

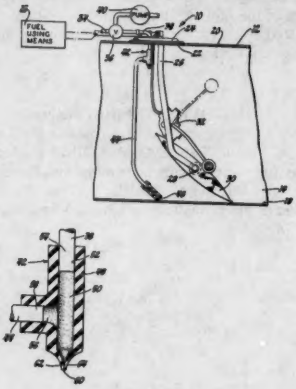
1. In a fuel supply and return system having a fuel tank, a fuel supply line for removing fuel from the tank for use in an engine or the like, and a fuel return line for returning excess fuel to the tank, the fuel return line also being adapted to remove water from the fuel tank under certain operational conditions, said fuel return line including a first line section extending into the top of the fuel tank, a second line section extending from near the top of the fuel tank to a point adjacent the bottom of the fuel tank, and a valve assembly connecting said first and second line sections, the improvement comprising:

said valve assembly including a housing having a chamber formed therein,

a first port continuously fluid connected with said first line section and continuously opening into said chamber,

a second port continuously fluid connected with said second line section and continuously opening into said chamber, and

a normally closed duckbill-like valve formed at least in part by said housing and so communicating with said chamber that said valve will open at a predetermined

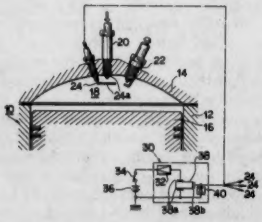


positive pressure in said chamber to permit fuel flow from said chamber directly into the fuel tank when said second line section is sufficiently restricted to cause fuel returning to build up said predetermined positive pressure, and that said valve will remain closed with negative pressure in said chamber to permit water in the bottom of the tank to be removed through said second line section and said chamber and said first line section under said certain operational condition.

4,340,024
INTERNAL COMBUSTION ENGINE

Suzuo Suzuki, Yokosuka; Yasuhiko Nakagawa, Kamakura; Hisamoto Aihara, Yokohama; Yasuo Matsumoto, Yokohama, and Yoji Sato, Yokohama, all of Japan, assignors to Nissan Motor Company, Limited, Tokyo, Japan

Filed Jun. 13, 1979, Ser. No. 48,176
Claims priority, application Japan, Oct. 13, 1978, 53/126589
Int. Cl.³ F02B *33/00*
U.S. Cl. 123—538 **11 Claims**



1. A direct injection type internal combustion engine including at least one combustion chamber fitted with a fuel injection valve for directly injecting fuel into the combustion chamber, the engine comprising a charging electrode disposed near the fuel injection valve within the combustion chamber, and a high voltage source for applying a high DC voltage to the charging

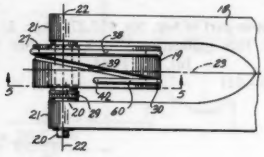
electrode to charge the fuel injected from the injection valve, said electrode and said high voltage source comprising means to charge the fuel with a polarity which is the opposite of said high DC voltage applied to said charging electrode.

4,340,025

PULLEY FOR COMPOUND ARCHERY BOW

Joseph M. Caldwell, 2259 W. Big Tujunga Canyon, Tujunga, Calif. 91042

Filed Jan. 28, 1980, Ser. No. 115,954
Int. Cl.³ F41B *5/00*
U.S. Cl. 124—86 **24 Claims**



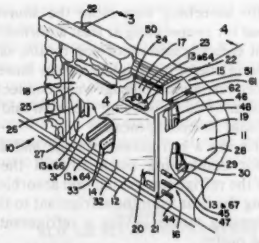
1. An eccentric pulley for a compound archery bow, the pulley including means defining an axis of rotation eccentric to a pulley rim surface which extends at least partially around the circumference of the pulley, the rim surface defining therein first and second grooves extending at least partially along the rim surface of the pulley, the first groove being defined entirely in a plane normal to said axis, the second groove being spaced from said plane with the amount of such spacing varying over at least a portion of the length of the second groove, and rigging cable passage means defined through the pulley from a first selected location on the first groove to a second selected location on the second groove spaced circumferentially along the rim surface from the first location.

4,340,026

WOOD BURNING STOVE

James H. Smith, R.D. #1, Rte. 23, Narvon, Pa. 17555

Division of Ser. No. 762,800, Jan. 26, 1977, Pat. No. 4,204,518.
This application Jan. 14, 1980, Ser. No. 111,732
Int. Cl.³ F24B *9/04*
U.S. Cl. 126—5 **2 Claims**



1. A wood burning heating unit having a combustion gas exit for use as a stove for space heating comprising:

(a) a left side wall, a back side wall and a right side wall defining a combustion chamber, said walls having wall cavities therein for heating a liquid;

(b) a floor

(c) spaced baffle members extending vertically within said walls and shorter in length than said walls to divide said wall cavities to provide vertical directional liquid flow paths;

(d) a plurality of rows of spaced alternating horizontal tubes forming a maze with alternating tubes and spaces in each row positioned above said combustion chamber, a group of said tubes providing a parallel path connected in series to a second group of said tubes providing a parallel path positioned between said left side wall and said right side wall

(e) baffle means within said walls to provide said series continuous flow path through said groups of tubes having said parallel paths; and

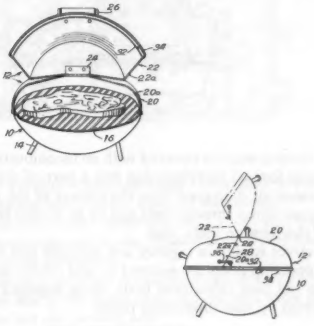
(f) inlet and outlet liquid conduit means communicating with said wall cavities.

4,340,027

BARBECUE GRILL COVER

Gary Fuss, 535 Grove St., Mayville, Wis. 53050

Filed Apr. 28, 1980, Ser. No. 144,288
Int. Cl.³ A47J *37/00*; F24B *3/00*; B65D *51/18*
U.S. Cl. 126—25 R **8 Claims**



1. A barbecue grill cover for use with a round kettle type grill having a base opening upwardly, and terminating in a circumferential upper edge,

said cover being generally dome shape having two sections on opposite sides of a generally upright cut, said sections including a relatively stationary, fixed back section, and a front section forming a door, the door being hinged to the back section at the top, enabling the door to swing outwardly between a lower closed position and an upper open position,

the stationary section and door together, when the door is in lower closed position, being continuous throughout the area of the cover, and

the cover having a circumferential lower edge engaging and resting on the upper edge of the base, and the cover being rotatable on the base.

4,340,028

OIL COMBUSTION TYPE INFRARED RAY GENERATING APPARATUS

Yoshio Hatta, and Shigeo Suzuki, both of Fukuroi, Japan, assignors to Shizuoka Seiki Co., Ltd., Fukuroi, Japan

Filed May 12, 1980, Ser. No. 148,867
Claims priority, application Japan, May 11, 1979, 54-57831; May 11, 1979, 54-57832
Int. Cl.³ F24C *3/04*
U.S. Cl. 126—92 R **11 Claims**

11. An oil combustion type infrared ray generating apparatus comprising

a fuel tank composed of a vessel having a flat upper surface,

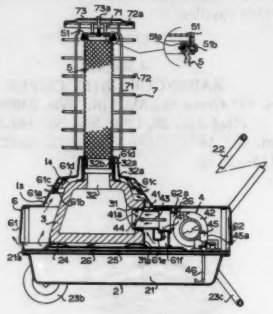
a frustoconical-shaped furnace body having an excellent heat insulating and refractory property and provided at its upper wall with an outlet opening and at its side wall with an inlet opening,

a pressure oil jet burner provided with a blower and connected to said inlet opening in the side wall of said furnace body,

said furnace body and pressure oil jet burner with said blower

being mounted side by side on said flat upper surface of said fuel tank,

a red heat cylindrical body erected vertically from an upper part of said furnace body and formed of refractory material, said red heat cylindrical body being permeable to gas and connected to said outlet opening in the upper wall of said furnace body,



said furnace body is covered with an incombustible cover with a gap formed therebetween and a part of the flow of compressed air delivered from the blower of the pressure oil jet burner flows through said gap so as to cool the surrounding of the furnace body, and

said cover is high in rigidity and strength and vertically erect supporting poles are secured to said cover, an upper part of the red heat cylindrical body being engaged with and supported by said supporting poles.

4,340,029

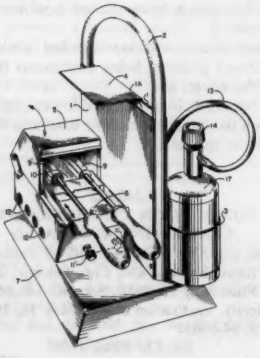
PORTABLE SOLDERING IRON HEATER SYSTEM

Thomas J. Kelly, Jr., Mandeville, La., assignor to Kel-Co Industries, Inc., Mandeville, La.

Filed Aug. 20, 1980, Ser. No. 179,714

Int. Cl.³ F24C *3/00, 5/00*

U.S. Cl. 126—237 **14 Claims**



1. A portable and self-contained heating device for heating soldering irons and the like, comprising:

a support base;

a fire box containing at least one burner forming a furnace to heat at least one soldering iron located on one side of said base;

a replaceble fuel supply tank area located on a side of said base opposite from that of said fire box from which area fuel is supplied to said burner;

laterally extending heat shield means associated with said base between said fuel supply area and said fire box, said shield means comprising an upwardly extending member having an extended surface extending both laterally and upwardly, for separating physically the side-by-side configured fuel supply area and fire box and for protecting the fuel supply area from the radiated heat of said fire box; and

a carrying handle attached to said base and positioned centrally for balance so that the unit may be readily carried with one hand.

4,340,030

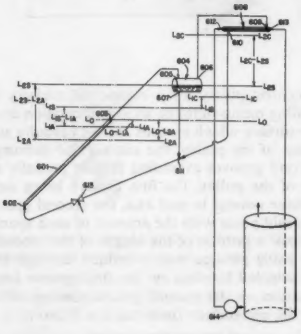
SOLAR HEATING SYSTEM

Stephen Molivadas, 2800 Upton St., NW., Washington, D.C. 20008

Continuation-in-part of Ser. No. 457,271, Apr. 2, 1974, Pat. No. 4,211,207. This application May 5, 1978, Ser. No. 902,950

Int. Cl.³ F24J *3/02*

U.S. Cl. 126—421 **112 Claims**



1. An improved heating system for collecting radiant energy, and absorbing heat from a source of radiant energy, and for transferring the absorbed heat to a substance, of the type having a refrigerant and a principal refrigerant circuit within which the refrigerant is circulated by the net static head, in the principal refrigerant circuit, resulting solely from the source of radiant energy and the local gravitational field, which includes:

(a) means for absorbing heat from the source of radiant energy, and for evaporating at least a portion of the liquid refrigerant entering said absorbing means, said absorbing means having one or more inlets, one or more outlets, and one or more refrigerant passageways connecting said one or more inlets of said absorbing means to said one or more outlets of said absorbing means;

(b) means, having a refrigerant passage and a condensing surface, for condensing essentially all the evaporated portion of the refrigerant exiting said absorbing means and transferring the heat from the refrigerant to the substance, said condensing means having a refrigerant inlet and a refrigerant outlet;

(c) means for transferring the refrigerant evaporated in said absorbing means to said condensing means; and

(d) means for returning liquid refrigerant from said condensing means to said absorbing means;

wherein the improvement comprises:

(a) means for separating the evaporated portion from the non-evaporated portion of the refrigerant exiting said absorbing means, for transferring the evaporated portion of the refrigerant to said condensing means, and for returning the non-evaporated portion of said refrigerant to said one or more inlets of said absorbing means; and

(b) means for reducing, including stopping, the flow of liquid refrigerant into all said one or more inlets of said absorbing means whenever the pressure of the refrigerant, at a

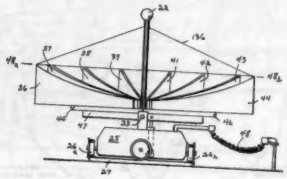
selected location, including the location of said flow-reducing means, exceeds a preselected value.

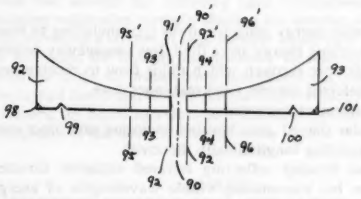
4,340,031

HIGH RATIO SOLAR ENERGY CONCENTRATING COLLECTOR

William P. Niedermeyer, 1024 Mt. Mary Dr., Green Bay, Wis. 54301

Filed Jul. 22, 1980, Ser. No. 171,097
Int. Cl.³ F24J *3/02; G02B 5/10*
U.S. Cl. 126—424 **15 Claims**





1. A concentrating solar energy collector comprising:
a disc reflector, said reflector being a a paraboloid of revolution:
a heat absorbing means located at the focal point along the axis of the reflector and arranged for heat transfer to a fluid medium contained therein;
a reflective disc support means whereby said disc reflector can be pivotally rotated about at least two axes that are perpendicular to each other;
said disc reflector including a plurality of parabolic shaped supports arranged with planar surfaces parallel to the axis of revolution of said reflector,
and a reflective surface installed on top of said supports wherein at least some of said shaped supports have a length measured along its major straight edge that is less than the width of the reflector, and wherein an abutment is disposed along said major straight edge, and wherein said abutment coacts with a circular member which is concentric about the axis of the paraboloid.

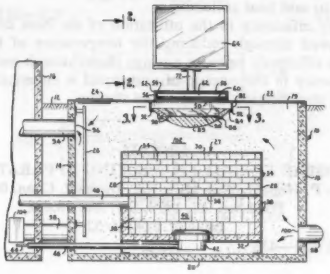
4,340,032

SOLAR HEATING SYSTEM

James Smith, 2503 Prospect, Kansas City, Mo. 64127

Filed May 27, 1980, Ser. No. 153,178
Int. Cl.³ F24J *3/02*
U.S. Cl. 126—430 **8 Claims**

1. Heating apparatus comprising:
a plurality of walls located beneath the ground surface and defining therebetween an enclosed chamber located remotely of an area to be heated;
a substantially enclosed shell in said chamber spaced inwardly of said walls to provide a space in the chamber exteriorly of said shell for accommodating air to be heated;
a plurality of heat retaining elements arranged in a mass in said shell, said elements being adapted to retain heat;
an air tight cavity located immediately beneath said heating retaining elements;
a transparent panel on said chamber located to direct sun beams into the chamber;
lens means for concentrating the sun beams passing through said panel onto said shell for heating of said heat retaining elements;
a burner in said cavity operable to selectively apply supplemental heat to said shell to heat said heat retaining elements;



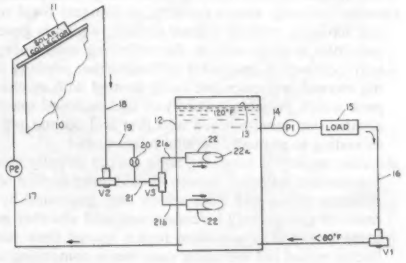
an exhaust conduit communicating with said caivty for exhausting the combustion gases of the burner;
a cold air return conduit communicating at one end with the area to be heated and at the other end with said space to deliver return air thereto;
a hot air delivery conduit communicating at one end with said space and at the other end with the area to be heated to deliver hot air thereto; and
means for effecting passage of air through said return conduit and said space to said delivery conduit to direct hot air to the area to be heated.

4,340,033

HEAT COLLECTING, UTILIZING AND STORAGE APPARATUS AND METHOD

James M. Stewart, P.O. Box 6161, Greenville, S.C. 29606

Filed Mar. 5, 1979, Ser. No. 17,410
Int. Cl.³ F24J *3/02*
U.S. Cl. 126—437 **6 Claims**



1. Heat collecting, utilizing and storage apparatus comprising:
a heat collector for heating a liquid;
a liquid storage tank;
means connecting said heat collector and storage tank for liquid flow therebetween;
a first line carrying liquid from an upper portion of said liquid storage tank and delivering same to a load for utilization of the heat therein;
a second line delivering liquid from said load to said liquid storage tank at a lower portion thereof;

a temperature operated valve interposed in said second line permitting such delivery of liquid to said liquid storage tank only when the temperature of the liquid utilized by the load is reduced below a predetermined value through heat exchange therein; and

said temperature operated valve being operable in response to the temperature of said liquid to allow said liquid to be reduced to its lowest possible temperature as required by said load prior to re-entering said tank at said lower portion and strata thereof;

means pumping liquid from said lower portion of said storage tank to said heat collector;

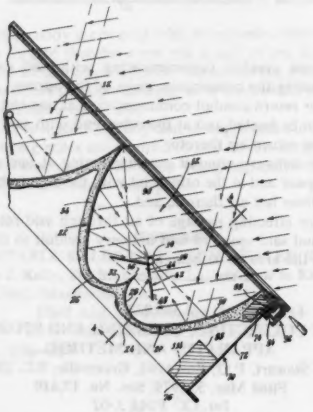
whereby efficiency in the utilization of the heat collector is achieved through reducing the temperature of the liquid more efficiently prior to passage therethrough and thermal efficiency in the storage of said liquid is enhanced by efficient stratification of said liquid therein.

4,340,034

SOLAR ENERGY COLLECTING APPARATUS

Thomas P. Hopper, Blue Hills Rd., Durham, Conn. 06422

Filed Sep. 17, 1979, Ser. No. 75,891
Int. Cl.³ F24J *3/02*
U.S. Cl. 126—438 **18 Claims**



1. An apparatus for collecting solar energy comprising:

elongate reflector means defining an elongate focal region and having a reflective inner surface, which is generally parabolic in cross-section, for reflecting solar energy to said focal region, said inner surface further partially defining an enclosed space and being formed with an elongate peak which projects inwardly of said enclosed space and divides said inner surface into first and second portions extending in mutually parallel relation; and

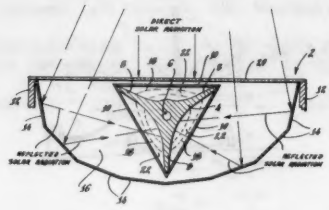
absorber means for receiving solar energy directly incident thereon and reflected thereto by said inner surface of said reflector means and from which heat generated by said received energy may be conducted, said absorber means being mounted in said focal region spaced from said reflector means and including vane means comprising a pair of vanes each having an elongate extreme free end and projecting to a position with said free end adjacent and spaced laterally from one side of said peak, said free ends of said vanes extending in generally mutually parallel relation to define a plane therebetween, said absorber means further being mounted in said focal region with said peak intersecting said plane whereby all straight line paths from the free end of one said vane to the free end of the other said vane are obstructed by said peak; whereby all straight line paths of energy reflected from one of said portions of said inner surface to the region between said peak and said absorber means toward the other of said portions are also obstructed; and whereby such reflected energy is incident on said absorber means and prevented from being reflected out of said apparatus.

4,340,035

SOLAR COLLECTOR

James A. Begun, 25 State St., Montpelier, Vt. 05602

Filed Apr. 24, 1980, Ser. No. 143,171
Int. Cl.³ F24J *3/02*
U.S. Cl. 126—438 **11 Claims**



11. In a solar energy collector of the type including an inner core for absorbing energy and a fluid flow passageway defined in said inner core through which fluids flow to receive heat energy transferred thereto from said inner core,

the improvement comprising:

a triangular shaped glass housing enclosing said inner core and extending longitudinally therewith,

said glass housing reflecting infrared radiation directed thereon but transmitting visible wavelengths of energy inwardly therethrough towards said inner core,

said inner core having three outwardly extending projections that extend proximate to the inner surface of said glass housing for absorbing said visible wavelengths of energy transmitted through said glass housing, each of said three outwardly extending projections being directed towards a different corner of said triangular glass housing,

said inner core and said outwardly extending projections being coated with a material adapted to absorb said visible wavelengths of energy and emit a corresponding quantity of infrared energy,

a mirrored surface arranged for reflecting solar energy towards said triangular glass housing, and

a heat insulated outer chamber for enclosing said inner triangular glass housing and for providing insulation between said inner triangular glass housing and its surrounding environment to retard heat transfer from within said inner triangular glass housing to said surrounding environment, said outer chamber being defined between said mirrored surface and a sheet of glass above said inner glass housing,

whereby said infrared energy radiated by said inner core is maintained proximate to said inner core by the reflective effect of the inner surface of said glass housing so that a substantial portion of said infrared energy radiated by said inner core is transferred to fluid within said fluid flow passageway defined through said inner core.

4,340,036

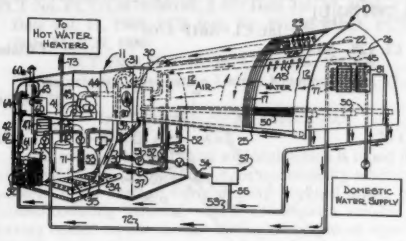
SOLAR HEATING SYSTEM FOR A GREENHOUSE OR OTHER BUILDING

Robert H. Williams, Maggie Valley, N.C., assignor to Meadowbrook Resort, Inc., Maggie Valley, N.C.

Division of Ser. No. 85,380, Oct. 16, 1979, Pat. No. 4,289,116.
This application Mar. 18, 1981, Ser. No. 245,024
Int. Cl.³ F24J *3/02*
U.S. Cl. 126—452 **4 Claims**

1. A method for collecting solar heat radiation in a building,

such as a greenhouse, having walls defining an enclosed interior with at least one of the walls having a light transmissive area for admitting light into the building, said method comprising positioning a plurality of elongate radiation absorptive, heat conductive strips beneath a light transmissive area of the wall of said building for receiving solar radiation and being heated thereby, with the heat conductive strips extending longitudinally downwardly and in laterally spaced relation



from one another for admitting light therebetween into the building while also partially shading the interior of the building, directing a stream of heat transfer liquid onto the surface of the strips for flowing downwardly therealong in contact with the strips for transferring heat therefrom, and receiving the heated liquid as it flows from the heat conductive strips and directing the liquid to a storage reservoir to permit subsequent utilization of the heat content thereof.

4,340,037

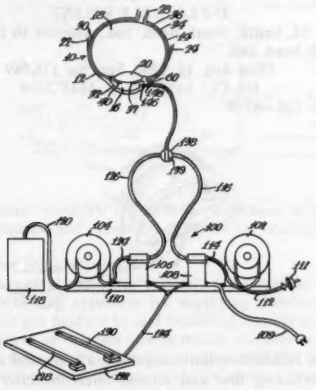
METHOD TO PREVENT COLLAPSE OF THE ANTERIOR CHAMBER UTILIZING A TERMINAL WITH EYE ENGAGING DETENTS

Andrew O. Lewicky, 2716 Blackhawk Rd., Wilmette, Ill. 60091

Division of Ser. No. 163,518, Jun. 27, 1980. This application Jul. 17, 1981, Ser. No. 284,570

Int. Cl.³ A61B *19/00*; A61M *7/00*

U.S. Cl. 128—1 R **6 Claims**



1. A method of performing ophthalmic surgical procedures, comprising the steps of:

providing an infusion terminal with a shank and detent means extending radially outward from said shank,

making an incision into an eye to define an opening spanning a distance slightly greater than the maximum diametric span of said detent means and said shank,

inserting said infusion terminal into the opening of said eye, and

fitting said detent means into interlocking engagement with said eye to detachably connect said infusion terminal to said eye.

4,340,038

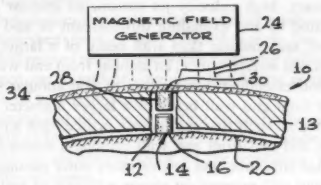
MAGNETIC FIELD CONCENTRATION MEANS AND METHOD FOR AN IMPLANTED DEVICE

Brian D. McKean, Sepulveda, Calif., assignor to Pacesetter Systems, Inc., Sylmar, Calif.

Filed Dec. 15, 1980, Ser. No. 216,540

Int. Cl.³ A61B *5/02*

U.S. Cl. 128—1.3 **12 Claims**



1. In a system including an implanted device having a magnetic field pick-up means for converting magnetic energy to electrical energy for energizing said implnated device, and an external magnetic field generator located so that magnetic lines of flux generated thereby intersect said pick-up means, a means for concentrating a portion of said magnetic lines of flux at said pick-up means comprising a metallic slug located between said generator and said pick-up means, thereby concentrating said magnetic lines of flux at said pick-up means.

4,340,039

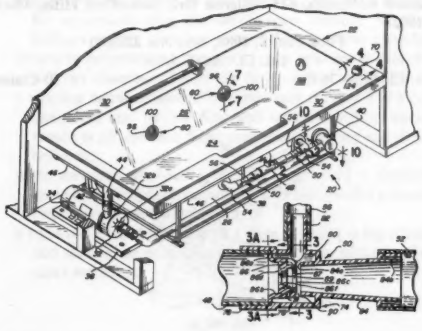
HYDROMASSAGE APPARATUS

Neil K. Hibbard, Waukesha; Cliff J. Kinsey, Burlington, and Clyde G. Belongia, Waterford, all of Wis., assignors to Sta-Rite Industries, Inc., Milwaukee, Wis.

Filed Jun. 19, 1980, Ser. No. 161,162

Int. Cl.³ A61H *9/00*

U.S. Cl. 128—66 **7 Claims**



1. In a hydromassage system, an air injector for introducing air into the flow of water:

said injector comprising an elongated, tubular housing having an inlet end section for receiving a flow of water moving in an axial direction and an outlet end section for discharging a high velocity, turbulent flow of air and water;

said inlet end section having a substantially cylindrical body with a downstream end secured to an inner end portion of said outlet end section and defining an annular air chamber around said inner end portion;

means for directing air into said annular air chamber;

said outlet end section comprising a divergent nozzle structure in coaxial alignment with said cylindrical body and increasing in transverse dimension from an inlet end toward an outer end portion, said inlet end being adjacent and downstream of said annular air chamber; and

nozzle insert means comprising an annular, outwardly extending radial flange secured at the outer periphery to said body, a cylindrical skirt wall secured to said flange and extending downstream, a wall segment extending radially from said skirt wall and secured thereto by arm segments, a center nozzle orifice in said wall segment that forms a primary, high velocity jet stream, an annular skirt wall secured to and extending downstream of said wall segment, said annular skirt wall being of a larger diameter than said nozzle orifice, an annular front end wall secured to and extending downstream of said annular skirt wall, said front end wall being of a larger diameter than said skirt wall such that said nozzle orifice, said annular skirt wall and said front end wall provide a stepped diameter orifice structure, and one or more outer passages formed around said primary jet stream adjacent to and upstream of said front end wall and adjacent to and downstream of said inlet end of said outlet end section for directing one or more secondary high velocity streams of water inwardly toward said primary jet stream for turbulent intermixing therewith, wherein said high velocity streams of water from said nozzle insert means entrains air from said annular air chamber into said high velocity streams by venturi action in a region between said front end wall and said inlet end of said inlet end section.

4,340,040

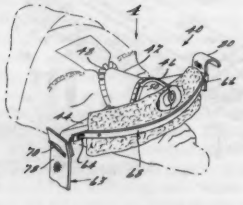
NOSE SPLINT

Richard E. Straith, 625 Hillcrest Dr., Bloomfield Hills, Mich. 48013

Filed Jan. 2, 1981, Ser. No. 222,001

Int. Cl.³ A61F *5/08*

U.S. Cl. 128—76 C **10 Claims**



1. A surgical splint for effecting controlled support of the nasal pyramid incident to fracture or dorsal resection thereof, said splint comprising a bridge portion of pyramid configuration, an elongated wing on each side of said bridge portion extending laterally from the base thereof, and means at the ends of said wings for attaching an elastic member for exerting a bias on said wings thereby to contract said bridge portion so to reduce the base dimension of said pyramid, the attaching means on said wings being disposed on a reentrantly folded portion to facilitate adjustment thereof.

4,340,041

ARTICULATE SPLINT FOR SURGICAL PURPOSES

Friedhelm Frank, Karlsruhe-Durlach, Fed. Rep. of Germany, assignor to Blanc GmbH & Co., Oberderdingen, Fed. Rep. of Germany

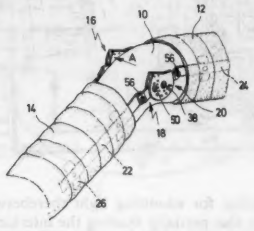
PCT No. PCT/DE80/00008, § 371 Date Sep. 24, 1980, § 102(e) Date Sep. 17, 1980

PCT Filed Jan. 24, 1980, Ser. No. 207,971

Claims priority, application Fed. Rep. of Germany, Jan. 24, 1979, 7901783[U]

Int. Cl.³ A61F *3/00*

U.S. Cl. 128—80 C **7 Claims**



1. An articulated surgical splint comprising two anchor bars and a joint, said joint including a pair of plates, means securing said plates to each other in spaced parallel relationship, a first stub having a portion received between said plates whereby said first stub is guided thereby, means connecting said first stub to said plates for pivotal movement around an axis perpendicular to the planes of the plates, a second stub secured to said plates, a series of apertures in at least one of said plates and stop means adapted to be set into said apertures for adjusting the relative angular position of said stubs and means for detachably connecting said anchor bars to said stubs.

4,340,042

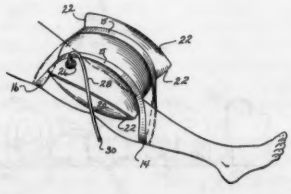
INFLATABLE SPLINT

Dennis M. Smith, South Bend, Ind., assignor to B.A.G., Inc., South Bend, Ind.

Filed Aug. 11, 1980, Ser. No. 176,989

Int. Cl.³ A61B *17/18;* A61F *5/04*

U.S. Cl. 128—87 R **2 Claims**



1. An inflatable splint comprising a body and a strap; said strap including first and second interconnected strap loop parts; said body being of single piece form and composed of a fluidtight expandable material and including valve means for filling and emptying the body of a fluid; said body being defined by a front surface, a rear surface, and a peripheral edge having opposed portions; said first strap loop part being secured to said body front surface adjacent a portion of said peripheral edge and extending from said body; said second strap loop part being secured to said body front surface adjacent an opposed portion of said peripheral edge and extending from said body oppositely of said first strap loop part; said strap extending at two-spaced locations across said body front

surface between said strap loop parts to form a resistance member when said body is inflated.

4,340,043

ADHESIVE-COATED SHEET MATERIAL INCORPORATING ANTI-BACTERIAL SUBSTANCES

Donald E. Seymour, Old Hatfield, England, assignor to Smith & Nephew Research Ltd., England

PCT No. PCT/GB79/00188, § 371 Date Jul. 17, 1980, § 102(e) Date Jul. 11, 1980, PCT Pub. No. WO80/01041, PCT Pub. Date May 29, 1980

PCT Filed Nov. 15, 1979, Ser. No. 198,106

Claims priority, application United Kingdom, Nov. 17, 1978, 45058/78

Int. Cl.³ A61F *13/00*; A61L *15/00*

U.S. Cl. 128—132 D **20 Claims**

1. An adhesive-coated sheet material which is liquid-impervious but has a high moisture vapor permeability whereby it is suitable as a wound or burn dressing, surgical drape, or like wound-covering material, which comprises a suitable sheet having coated on one surface thereof a continuous layer of an adhesive which has incorporated thereinto in a uniform known amount per unit area an amount of an antibacterial silver salt sufficient to kill bacteria in the wound and surrounding covered skin area.

4,340,044

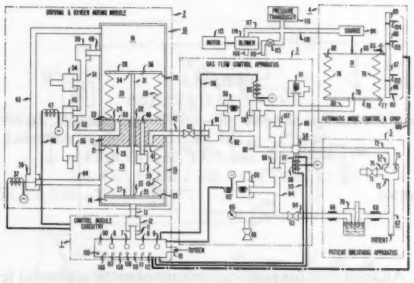
VOLUME VENTILATOR

Donald Levy, River Vale, N.J., and Tibor Rusz, Pittsfield, Mass., assignors to Berkshire Research Partners, New York, N.Y.

Filed Mar. 20, 1980, Ser. No. 131,920

Int. Cl.³ A61M *16/00*

U.S. Cl. 128—204.21 **30 Claims**



1. A volume ventilator for artificial ventilation of a patient during inspiration and expiration cycles of the ventilator comprising

patient breathing apparatus,

gas flow control apparatus operably connected to said patient breathing apparatus for supplying a delivered air-/oxygen gas mixture to said breathing apparatus,

a driving and air/oxygen mixing means operably connected to said flow control apparatus and controllable for delivering a prescribed mixture of air/oxygen gas to said flow control apparatus, and

control means operably connected to said flow control apparatus and said driving and air/oxygen mixing means including

adjustment means cooperating with said flow control apparatus and said driving and air/oxygen mixing means for setting a prescribed minute volume, respiratory rate and inspiration-to-expiration ratio,

said control means comprising control circuitry activated by settings of said adjustment means for furnishing control signals corresponding to said prescribed minute volume, respiratory rate and inspiration-to-expiration ratio for controlling the driving and air/oxygen mixing means to mix and deliver said air/oxygen gas mixture to said gas flow control apparatus and for controlling the operation of said gas flow control apparatus for supplying to said patient breathing apparatus said air/oxygen gas mixture at said prescribed minute volume, respiratory rate and inspiration-to-expiration and the air/oxygen concentration of said predetermined volume of air/oxygen gas mixture,

said driving and air/oxygen mixing means comprises a driving chamber,

said control means comprises a plurality of flow valve means actuable for delivering oxygen gas from a source to said driving chamber,

said control circuitry further comprises circuitry responsive to furnished ones of said control signals for actuating predetermined ones of said valve means for delivering said oxygen gas to said driving chamber during an inspiration cycle of said ventilator, and

said driving and air/oxygen mixing means further comprises

a driving chamber for receiving said oxygen under pressure during an inspiration cycle of the ventilator from said supplying means,

a storing chamber for storing the oxygen receivable from said driving chamber,

valve means controlled by said control circuitry during an expiration cycle of said ventilator for communicating the oxygen from said driving chamber to said storing chamber,

a mixing bellows mounted within said storing chamber and having an interior bellows mixing chamber for storing an air/oxygen mixture,

valve means controlled by said control circuitry during an inspiration cycle of said ventilator for communicating some or all of the oxygen from said storing chamber to said bellows mixing chamber,

valve means actuatable during an inspiration cycle of said ventilator in response to differential pressures for exhausting oxygen in said storing chamber to the atmosphere and for mixingly admitting air into said bellows mixing chamber,

a drive bellows mounted within said driving chamber and having an interior drive bellows chamber for storing an air/oxygen mixture,

means operable during an expiration cycle of said ventilator for communicating the air/oxygen mixture from said bellows mixing chamber to said drive bellows chamber,

means communicating the air/oxygen mixture in said drive bellows chamber to said gas flow control apparatus;

a spacing member spaced between said driving and storing chambers and having first and second surfaces each of which is affixed to a fixed end of said mixing and driving bellows,

plate members each of which is secured to a respective movable end of each respective said bellows for providing respective inner chambers, and

a rigid rod extending through a bore in said spacing member and secured at ends of said rod to facing surfaces of said plate members.

4,340,045

LUNG VENTILATOR

Roger E. W. Manley, Farnham Common, England, assignor to Compair Maxam Limited, Cornwall, England

Filed Aug. 13, 1980, Ser. No. 177,831

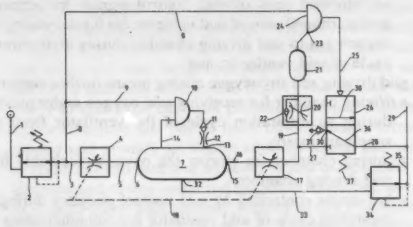
Claims priority, application United Kingdom, Sep. 25, 1979, 7933238; Nov. 27, 1979, 7940968

Int. Cl.³ A61M *16/00*

U.S. Cl. 128—204.24 **14 Claims**

1. A lung ventilator including a reservoir, first and second inlets to said reservoir, an inlet connection communicating with said inlets for a supply of respirable gas to said reservoir, first and second outlets from said reservoir, a face mask con-

nection for a face mask having a face valve, means communicating said face mask connection with said first and second outlets, a first flow regulator connected between said first inlet and said inlet connection, said first flow regulator providing a predetermined minimum minute volume of gas flow for ventilation, a first valve device connected between said second inlet and said inlet connection, said first valve device being constructed to open when the pressure in said reservoir falls below a first predetermined value and to close when said pressure rises to a second predetermined value higher than said first predetermined value, a second flow regulator and a second valve device connected between said first outlet and said face mask connection, said second flow regulator providing an inspiratory flow rate which is greater than the flow rate provided by said first flow regulator, and said second valve device being downstream of said second flow regulator, timing means controlling said second valve device, said timing means being operative to cause said second valve device to provide an intermittent flow of gas for ventilation, a demand valve between said second outlet and said face mask connection, and means which is operative to prevent said second valve device from allowing any flow of gas from said first outlet to said face mask connection when the pressure in said reservoir is below a third predetermined value which is higher than said second predetermined value, and said means also being operative to cause said intermittent flow of gas through said second device to be resumed to provide ventilation when said pressure in said reservoir rises above a fourth predetermined value which is higher than said third predetermined value.

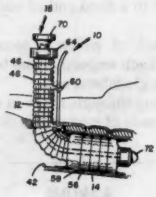


4,340,046

STATIC TRACHEOSTOMY TUBE

Everard F. Cox, 4510 Mt. Carmel Rd., Hampstead, Md. 21074

Filed Dec. 8, 1980, Ser. No. 214,243
Int. Cl.³ A61M *25/02*
U.S. Cl. 128—207.17 **17 Claims**



1. A static tracheostomy tube for use in the trachea of respiratory patients, comprising:

a flexible tube means, said flexible tube means having a first end and a second end, said flexible tube means having a first passageway therethrough, said flexible tube means being inserted into a trachea of a respiratory patient thereby defining a second passageway therebetween,

an inflatable cuff means, said inflatable cuff means encircling the outside of said flexible tube means, said inflatable cuff means being spaced from said first end of said flexible tube means and being affixed thereto, said inflatable cuff means having a plurality of interfacing flutes, said flutes having a configuration of corrugated-like convoluted rings located around said inflatable cuff means, said corrugated-like convoluted rings being adjacent to each other in interface, said corrugated-like convoluted rings forming said flutes and providing a flexibility to prevent kinking, said inflatable cuff means having a plurality of constricting bands, said constricting bands being located around said inflatable cuff means, each of said constricting bands being located in the crease of a pair of adjoining and adjacent interfacing flutes;

an inflating means, said inflating means being connected to said inflatable cuff means and communicating internally therewith, said inflatable cuff means being capable of closing said second passageway in said trachea, of said respiratory patient, into which it is inserted and subsequently inflated by said inflating means;

an obturator means, said obturator means being malleable yet rigid, said obturator means being removably insertable in and through said first passageway in said flexible tube means; and

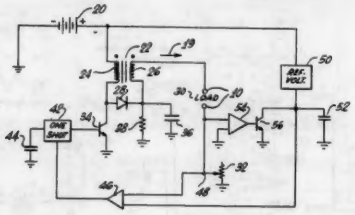
locking means capable of being removably closed around the outside of said flexible tube means and non-destructably and releasably locking thereto at any point thereon in association with said respiratory patient.

4,340,047

IONTOPHORETIC TREATMENT APPARATUS

Robert Tapper, 175 Acari Dr., Los Angeles, Calif. 90049, and Gordon F. Sweeley, Grants Pass, Oreg., assignors to Robert Tapper, Los Angeles, Calif.

Division of Ser. No. 952,341, Oct. 18, 1978, Pat. No. 4,301,794.
This application Feb. 8, 1980, Ser. No. 119,844
Int. Cl.³ A61N *1/30*
U.S. Cl. 128—207.21 **7 Claims**



1. An apparatus for applying an iontophoretic treatment to a living body, comprising:

a pair of electrodes adapted to contact the skin of the body, in spaced relationship to each other;

a supply capacitor coupled across the electrodes for supplying electrical current for conduction through the body, from one electrode to the other;

switch means for charging the supply capacitor at regular intervals of time; and

means for controllably adjusting the frequency at which the switch means operates to charge the supply capacitor, to adjust the magnitudes of the voltage on the capacitor and the electrical current supplied by the capacitor, correspondingly.

4,340,048

SELF-DRIVEN HYPODERMIC INJECTOR

James B. Eckenhoff, Los Altos, Calif., assignor to ALZA Corporation, Palo Alto, Calif.

Filed Mar. 28, 1981, Ser. No. 246,595
Int. Cl.³ A61J *7/00*
U.S. Cl. 128—213 R **16 Claims**

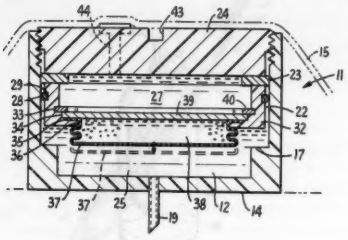
1. A self-driven hypodermic injector for injecting an injecta-

ble pharmaceutical preparation into a patient according to a controlled dosage regimen comprising

(a) a hollow closed rigid body;

(b) a water imbibing member mounted within the body that divides the lumen of the body into a first compartment adapted to hold the pharmaceutical preparation and a second compartment adapted to hold an aqueous liquid, the member comprising:

(i) a rigid semipermeable wall that faces the second compartment;



(ii) an expandable impermeable wall that faces the first compartment; and

(iii) a water imbibing composition contained between the rigid semipermeable wall and the expandable impermeable wall; and

(c) a conduit that extends through the wall of the body, one end of which opens into the first compartment and the other end of which is adapted to pierce the skin of the patient.

4,340,049

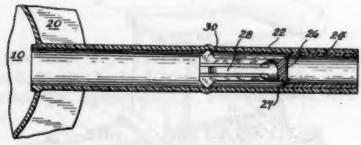
BREAKAWAY VALVE

John M. Munsch, Libertyville, Ill., assignor to Baxter Travenol Laboratories, Inc., Deerfield, Ill.

Filed Oct. 18, 1979, Ser. No. 86,102

Int. Cl.³ A61M *5/00, 1/00;* F16K *13/04*

U.S. Cl. 128—214 R **9 Claims**



1. A valve inside a flexible tube which comprises:

(a) a tubular portion having a closed end to prevent fluid flow in the tube;

(b) a handle extending from and integral with the closed end of the tubular portion;

(c) a zone of weakness positioned whereby at least a portion of the closed end is removable by manipulating the handle to separate said closed end from the tubular portion to permit fluid flow through the valve; and

(d) projection means radially outwardly extending from the handle, said projection means having sufficient frictional contact with the interior surface of the flexible tube so that after separation of the handle from the tubular portion the handle can be moved away from the tubular portion and remain in any selected position in the tube, away from the tubular portion, to assure uninterrupted fluid flow.

4,340,050

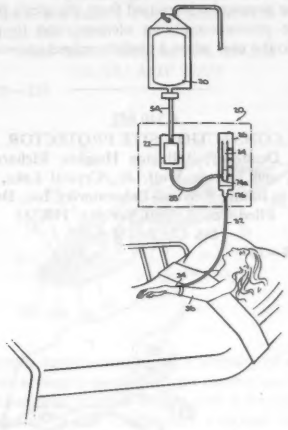
MEDICAL FLUID FLOW RATE INDICATING/CONTROLLING DEVICE

Douglas G. Noiles, New Canaan, Conn., assignor to Delmed Inc., Canton, Mass.

Filed Dec. 29, 1980, Ser. No. 220,831

Int. Cl.³ A61M *5/14*

U.S. Cl. 128—214 C **8 Claims**



1. A liquid flow rate indicating/controlling device comprising:

(a) a first chamber vented to the atmosphere and having a liquid inlet in fluid communication with a liquid supply, a liquid outlet, and means to maintain the height of liquid in the chamber essentially constant;

(b) a second chamber vented to the atmosphere, in fluid communication with the liquid outlet of the first chamber for receiving liquid therefrom, and having a thin-wall orifice plate at a predetermined point, said plate having an orifice through which liquid received from the first chamber passes out of the second chamber, the height of liquid in the second chamber above the orifice indicating the flow rate through the orifice; and

(c) means for setting the pressure on the liquid received from the first chamber just before the liquid passes through the orifice.

4,340,051

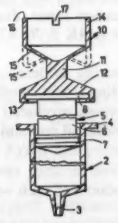
FINGER-PRESSURE CUSHIONING AND INDICATING DEVICE, AND SYRINGE INCLUDING SAME

Saul Leibinsohn, 11 Oley Hagardom, Rishon Lezion, Israel

Filed Jan. 12, 1981, Ser. No. 224,109

Int. Cl.³ A61M *5/00*

U.S. Cl. 128—215 **13 Claims**



1. A device for application to a syringe, or other finger-pres-

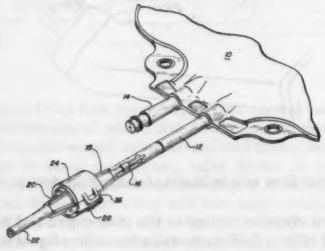
sure actuated article which includes a displaceable pressure-applying element adapted to be displaced by the user's finger when actuating same, characterized in that said device includes a yieldable finger-engaging member comprising an attaching section at one end for attaching same to the displaceable pressure-applying element, a finger-engageable section at the opposite end for engagement by the user's finger, and an intermediate yielding section between the two end sections and adapted to soften the pressure transmitted from the user's finger to the displaceable pressure-applying element and to provide an indication to the user when a predetermined pressure has been applied.

4,340,052

CONNECTION SITE PROTECTOR

T. Michael Dennehey, Arlington Heights; Richard J. Greff, Ingleside, and Ludwig Wolf, Jr., Crystal Lake, all of Ill., assignors to Baxter Travenol Laboratories, Inc., Deerfield, Ill.

Filed Oct. 7, 1980, Ser. No. 194,733
Int. Cl.³ A61M *3/00*
U.S. Cl. 128—247 **2 Claims**



1. The combination of a connection site in contact with and covered by a material containing a sterilizing agent, and a manually openable and closable protector of generally cylindrical shape;

said protector being hollow and open at each end when in the closed position;

said protector comprising at least two hinged and generally semicircular segments, the inner wall of said segments adapted to surround and protect from contamination the covered connection site when said protector is in a closed position and surrounding said material containing a sterilizing agent.

4,340,053

MOLDED BODY COMPRISING VEGETABLE OIL FOR GENERATING AEROSOL FOR TREATING ATHLETE'S FOOT

Kiichiro Sarui, 26-15 Takadanobaba 4-chome, Shinjuku-ku, Tokyo, Japan

Filed Oct. 22, 1980, Ser. No. 199,544
Claims priority, application Japan, Jun. 20, 1980, 55-82848
Int. Cl.³ A61F *7/00*; A61K *9/70, 47/00*; A61M *11/00*
U.S. Cl. 128—260 **10 Claims**

1. A method for treating athlete's foot fungal infection which comprises contacting a portion of the skin afflicted with such fungus with an aerosol produced by heating a molded body comprising a vegetable oil containing composition which is solid at room temperature and which melts upon heating to generate said aerosol, said aerosol comprising an effective amount of oxidation products of such vegetable oil to destroy said fungus.

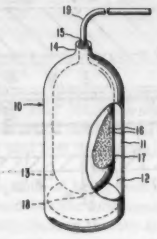
7. A molded body for treating athlete's foot comprising a vegetable oil containing composition which is solid at room temperature and which melts upon heating to form an aerosol containing an effective amount of oxidized products of said vegetable oil to treat athlete's foot.

4,340,054

DISPENSER FOR DELIVERING FLUIDS AND SOLIDS

Alan S. Michaels, San Francisco, Calif., assignor to ALZA Corporation, Palo Alto, Calif.

Filed Dec. 29, 1980, Ser. No. 220,789
Int. Cl.³ A61M *7/00*
U.S. Cl. 128—260 **15 Claims**



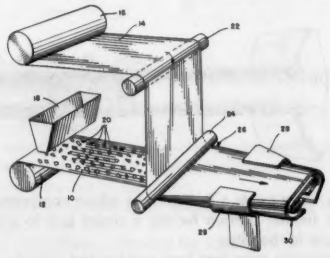
1. In an osmotically driven dispenser comprising an inner flexible container adapted to contain a useful agent, an intermediate layer of an osmotically effective solute at least partly covering the container, and an outer shape-retaining microporous membrane surrounding the layer of osmotically effective solute, said microporous membrane housing in its micropores a material permeable to the passage of fluid, and a port that extends from the interior of the container to the exterior of the dispenser though which agent may be charged into the container and dispensed from the container over time.

4,340,055

IMPREGNATED TAMPON AND METHOD OF FABRICATING SAME

Vincent R. Sneider, 3422 Hallcrest Dr. NE., Atlanta, Ga. 30319

Filed Oct. 1, 1980, Ser. No. 192,720
Int. Cl.³ A61F *13/20*
U.S. Cl. 128—270 **16 Claims**



1. A method of fabricating a medicated tampon comprising the steps of:

providing an absorbent corpus in sheet form;

providing an overwrap in sheet form about said absorbent corpus, and

disposing a medicament between said overwrap and the absorbent corpus and overlaying the sheets and forming said sheets into the desired shape of the tampon with the overwrap on the outside so that the medicament is disposed nearest the outside of the tampon when inserted into an anatomical cavity.

4,340,056

NON-AIR-ENTRAINING MIXER/DISPENSER

Robert A. Erb, Valley Forge, Pa., assignor to The Franklin Institute, Philadelphia, Pa. and RSP Co., Stamford, Conn.

Filed Feb. 2, 1981, Ser. No. 230,651
Int. Cl.[3] A61J *1/00*
U.S. Cl. 128—272.1 6 Claims

1. An apparatus for mixing and dispensing fluids without the occlusion of air comprising:

a syringe-type cylindrical body having a reduced portion at one end;

a cap having a hypodermic needle pentrable septum disposed in said cap;

mating means between said reduced portion of said cylindrical body and said cap for hermetically sealing said septum to said reduced cylinder end;

a plunger assembly insertable in the other end of said cylindrical body, said plunger assembly comprising a shaft, a mixing head disposed at one end of said shaft, a knob disposed at the other end of said shaft, a piston reciprocally riding said shaft between said head and knob for hermetically and slidably filling the spacing between said shaft and the cylinder walls, a spring disposed between said knob and said piston and urging said piston towards said mixing head; and

spacer means adapted for insertion between said knob and said piston for locking the piston on said shaft, and converting the mixing function to a dispensing function.

4,340,057

RADIATION INDUCED GRAFT POLYMERIZATION

Daniel R. Bloch; Charles N. Odders, and John R. Rogers, all of Racine, Wis., assignors to S. C. Johnson & Son, Inc., Racine, Wis.

Filed Dec. 24, 1980, Ser. No. 219,669
Int. Cl.[3] A61F *13/18*
U.S. Cl. 128—284 21 Claims

1. Method of preparing moisture-swellable absorbent material comprising:

(a) treating a substrate capable of forming graft polymers with an acrylate salt under the influence of high energy ionizing radiation, with an aqueous monomer dispersion of

(i) an acrylate salt selected from the group consisting of sodium acrylate, potassium acrylate, lithium acrylate, ammonium acrylate and mixtures thereof, and;

(ii) a water-dispersible cross-linking monomer in amounts from about 2 percent to 10 percent by weight of said acrylate salt, said aqueous dispersion having sufficient acrylate salt and cross-linking monomer to form a reaction product with said substrate in amounts from about 60 percent to 200 percent by weight of the substrate; and

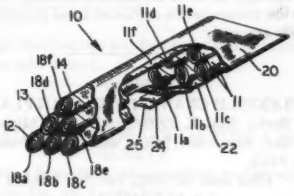
(b) irradiating said treated substrate with high energy ionizing radition having an energy of at least about 150,000 electron volts at a dose rate no greater than 90 megarads per second to provide a dosage from about 0.5 to 25 megarads, to thereby form a graft polymer on the surface of, and on interpenetrating network within, said substrate.

4,340,058

SANITARY NAPKIN

Larry L. Pierce, and June S. Pierce, both of 4120 Vansant Rd., Douglasville, Ga. 30135

Filed Dec. 5, 1980, Ser. No. 213,233
Int. Cl.[3] A61F *13/16*
U.S. Cl. 128—287 13 Claims



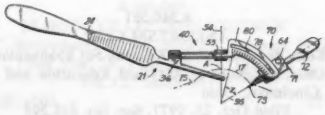
1. A sanitary napkin comprising a plurality of elongate absorbent pads arranged parallel to one another and in a bundle generally triangular in cross-section with a first layer of pads arranged in side-by-side relationship, a second layer of pads arranged in side-by-side relationship and each pad of the second layer of pads overlying the pads of the first layer of pads at positions over the adjacent surfaces of the adjacent ones of the pads in the first layer, and a third layer of pads comprising at least one pad overlying the pads in the second layer, a liquid pervious material surrounding all of said pads for holding the pads in an uncompressed bundled relationship with the pads movable longitudinally with respect to one another, a sheet of liquid impervious material substantially covering the bottom portion of the first layer of pads, and a layer of adhesive material disposed on the bottom portion of said napkin for securing said napkin to an undergarment, as a result of the napkin not being compressed said napkin being characterized by being bendable along its length with portions of some of the pads movable longitudinally with respect to others of the pads as the napkin is bent along its length whereby the napkin is placed in external contact with the female human body with the third layer of pads in aligned contact with the labia and with the other pads holding the third layer of pads in contact with the labia and bending the napkin along its length as necessary to conform to the curvature of the external surfaces of the anatomy adjacent to the labia.

4,340,059

RADIAL KERATOTOMY DEVICE

Gerald P. Marinoff, 8 Rockford Dr., West Nyack, N.Y. 10994

Filed Oct. 23, 1980, Ser. No. 199,693
Int. Cl.[3] A61B *17/32*
U.S. Cl. 128—305 18 Claims



1. A hand-held surgical instrument for performing radial ophthalmological incisions comprising fixation means for supporting said instrument on the globe of an eye and adapted to be held in one hand of a surgeon; a linkage assembly connected

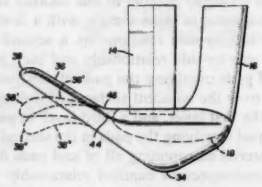
to said fixation means; a knife assembly connected to said linkage assembly including a knife blade holder and a knife blade removably carried therein for forming incisions in the eye of a patient; said knife assembly including a linkage arm pivotally connected to said linkage assembly at a pivot point for indexing movement thereabout; said linkage arm carrying a pair of spaced guide walls extending away from said pivot point, guide means formed in each of said walls along a curved path, support means carried by said knife blade holder and positioned to cooperate with said guide means in said walls to prevent swinging movement of said knife blade thereby supporting said knife blade holder between said walls for movement along a path toward and away from said pivot point, whereby when said surgical instrument is in an operative position and said blade is moved along said path, said blade will penetrate the eye to form an incision radially oriented with respect to the cornea when sufficient hand pressure is applied to said knife assembly.

4,340,060

FLEXIBLE CRANIOTOME FOOTPLATE

Joseph J. Berke, 3333 E. Jefferson, Detroit, Mich. 48207, and Eric L. Gay, Ann Arbor, Mich., assignors to Joseph J. Berke, Detroit, Mich.

Filed Jun. 16, 1980, Ser. No. 159,481
Int. Cl.[3] A61B *17/14*
U.S. Cl. 128—317 **5 Claims**



1. In combination with a craniotome having a handle, a downwardly depending blade, a support member extending downwardly from said handle substantially parallel to the blade, said support member terminating in a support foot generally perpendicular to the longitudinal axis of the blade, said blade bearing on said support foot intermediate the ends of said support foot, the improvement comprising:

a flexible, elastomeric extension on said support foot, said elastomeric extension including a downwardly extending heel portion on the part of the support foot opposite to where the blade bears on said support foot;

said flexible elastomeric extension further including a tip portion which extends forwardly and away from one end of said support foot opposite to where said support member terminates;

said forwardly extending flexible elastomeric tip being essentially free of non-flexible material;

such that upon normal use of the craniotome the tip flexes to negotiate bony prominences and also separates the dura from the underside of the skull and the downwardly extending heel depresses the dura to completely strip the dura from the skull.

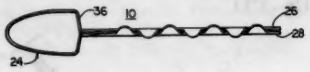
4,340,061

ANEURYSM CLIP

George Kees, Jr., Alexandria, Ky., and Set Shahbabian, Cincinnati, Ohio, assignors to Mayfield Education and Research Fund, Cincinnati, Ohio

Filed Oct. 25, 1977, Ser. No. 845,295
Int. Cl.[3] A61B *17/12*
U.S. Cl. 128—325 **2 Claims**

1. An aneurysm clip which comprises a pair of elongated flat blades having elongated smooth edges for positioning adjacent a blood vessel, means urging the blades into gripping relation with an aneurysm on the blood vessel, and teeth on edges of the blades spaced from the smooth edges thereof for engaging and gripping the aneurysm spaced from the blood vessel, the teeth on each blade extending through spaces between teeth on



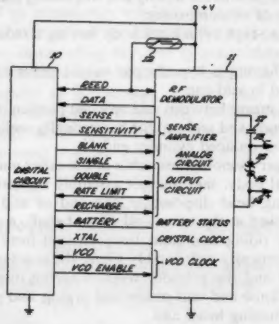
the other blade into overlapping relationship with the other blade when the clip is closed, gripping faces of the blades being flat and the blades being urged into flatwise relation for gripping the aneurysm.

4,340,062

BODY STIMULATOR HAVING SELECTABLE STIMULATION ENERGY LEVELS

David L. Thompson, Fridley; Ray S. McDonald, St. Paul; Yan S. Lee, Plymouth, all of Minn., and Marc T. Stein, Tempe, Ariz., assignors to Medtronic, Inc., Minneapolis, Minn.

Continuation of Ser. No. 957,827, Nov. 6, 1978, abandoned. This application Aug. 29, 1980, Ser. No. 182,597
Int. Cl.[3] A61N *1/36*
U.S. Cl. 128—419 PG **10 Claims**



1. A body implantable stimulator which comprises means for alternatively and selectively providing a series of one of a predetermined plurality of independent output initiate signals and means providing stimulation signals in response to said output initiate signals including means for establishing the amplitude of said stimulation signals in accordance with the series of said output initiate signals that is provided.

4,340,063

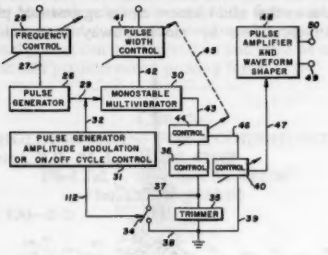
STIMULATION DEVICE

Donald D. Maurer, Anoka, Minn., assignor to EMPI, Inc., Fridley, Minn.

Continuation-in-part of Ser. No. 109,175, Jan. 2, 1980, abandoned. This application Feb. 14, 1980, Ser. No. 121,395
Int. Cl.[3] A61N *1/36*
U.S. Cl. 128—421 **23 Claims**

1. A device for electrically stimulating living tissue comprising: pulse generator means for producing periodic electrical pulses, first control means for controlling the pulse width of said periodic electrical pulses, adjustable second control means for varying the intensity of said periodic electrical pulses, and means coupling said first and second control means to simultaneously adjust said first and second control means relative to each other whereby an adjustment of the first control means causes an adjustment of the second control means to change the intensity of the periodic electrical pulses as a function of a

change of the width of said pulses wherein the amplitude of stimulation intensity decreases with an increase in pulse width



and the amplitude of stimulation intensity increases with a decrease in pulse width, and means for carrying said pulses to tissue engaging electrodes.

4,340,064

BRASSIERE

Peter R. Vale, 1010 Fifth Ave., New York, N.Y. 10028, assignor to Peter R. Vale and Pearl R. Vale, both of New York, N.Y.

Filed Dec. 3, 1979, Ser. No. 99,688
Int. Cl.³ A41C *3/06*
U.S. Cl. 128—496 **7 Claims**

1. In a brassiere including a pair of cups, releasable and adjustable rear fastening means and a pair of shoulder straps, the improvement comprising an upright Y-shaped insert of two-way stretch fabric in a single piece, said insert having side edges joined to each of said cups, said insert providing graduated stretch from a minimum at the bottom of said insert to a maximum at the upper portion of same while providing separation and freedom of motion to the wearer without causing irritation to the wearer.

4,340,065

METHOD AND APPARATUS FOR DISPLAYING ELECTROCARDIOGRAM SIGNALS

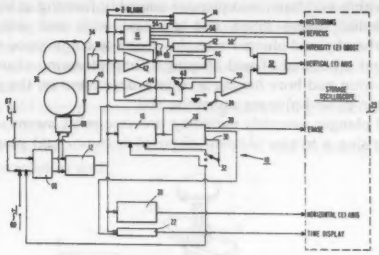
Lawrence J. Gessman, 100 Haven Ave., Apartment 6D, New York, N.Y. 10032

Filed Sep. 11, 1979, Ser. No. 74,475
Int. Cl.³ A61B *5/04*
U.S. Cl. 128—712 **16 Claims**

1. A system displaying physiological signals, such as ECG signals, which signals are reproduced at greater than real time after being recorded in real time for the observation of portions of said signals representing certain cardiac events, said system comprising:

(a) means for receiving said reproduced ECG signals;

(b) means for processing, entirely in analog form, said ECG signals for display in a format comprising a plurality of separate vertically displaced lines; and



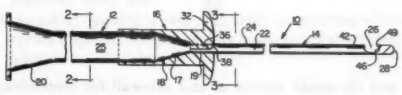
(c) a storage oscilloscope for displaying said processed ECG signals in said format.

4,340,066

MEDICAL DEVICE FOR COLLECTING A BODY SAMPLE

Nayan S. Shah, Chesterfield, Mo., assignor to Sherwood Medical Industries Inc., St. Louis, Mo.

Filed Feb. 1, 1980, Ser. No. 117,677
Int. Cl.³ A61B *10/00*
U.S. Cl. 128—749 **10 Claims**



1. A medical specimen collection device (**10**) comprising a handle (**12**) and an elongate sample collecting member (**14, 14*a***) connected to said handle (**12**) for insertion into a body cavity for collecting sample material therefrom, at least a portion of said member (**14, 14*a***) being hollow to provide a generally longitudinal chamber (**22, 70**) therein for receiving sample material and having a generally longitudinal slot (**24, 72**) through the sidewall thereof to said chamber (**22, 70**), said slot (**24, 72**) having opposed side edges extending generally parallel to the longitudinal axis of said member for scraping sample material from a body cavity through said slot (**24, 72**) and into said chamber (**22, 70**) in response to rotation of said member (**14, 14*a***) when in a body cavity, and sample gathering means (**36**) mounted adjacent the handle (**12**) of the device for movement relative to said collecting member (**14, 14*a***) and extending through said longitudinal slot (**24, 72**) and into said chamber (**22, 70**), said gathering means (**36**) being distally longitudinally slideable along said slot and chamber from an initial proximal position to a relatively distal position after said member is removed from the body cavity to move sample material collected in said chamber (**22, 70**) in a distal direction to gather the same.

4,340,067

BLOOD COLLECTION SYRINGE

Christen C. Rattenborg, 1379 E. 55th Pl., Chicago, Ill. 60637

Filed Mar. 31, 1980, Ser. No. 135,314
Int. Cl.³ A61B *5/14*
U.S. Cl. 128—763 **28 Claims**

1. A fluid collection syringe, comprising, in combination:

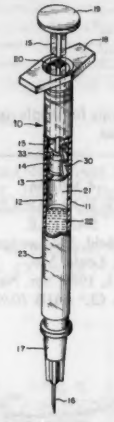
an elongated hollow housing having a sidewall defining a central bore, said housing being open at one end to the atmosphere;

a hollow needle member mounted on the other end of said

housing, said needle member having a central passageway in communication with said bore;

a plunger assembly including a plunger slidably mounted within said bore, said plunger assembly forming at least a partial sliding liquid and gas seal with said sidewall whereby said plunger assembly forms in conjunction with said other end of said housing a fluid receiving chamber within said bore having a volume dependent on the position of said plunger assembly; and

said plunger assembly including pressure relief means comprising a bypass element disposed between said plunger



and the inside surface of said sidewall for establishing a pressure relief passageway between said chamber and the atmosphere for air trapped in said chamber, said bypass element when dry allowing air to pass through said passageway to enable fluid entering said chamber through said needle member to displace air from said chamber through said passageway, and when wet blocking fluid from passing through said passageway, and remaining at least partially exposed to the interior of said chamber when said chamber is filled with fluid whereby said bypass element is wetted to prevent fluid from leaking from said chamber through said passageway.

4,340,068

MULTIPLE SAMPLE NEEDLE WITH VEIN ENTRY INDICATOR

Joseph Kaufman, Emerson, N.J., assignor to Becton, Dickinson and Company, Paramus, N.J.

Filed Jun. 18, 1980, Ser. No. 160,781
Int. Cl.[3] A61B *5/14*
U.S. Cl. 128—766 **11 Claims**

1. A multiple sample needle assembly for determining vein entry when collecting blood samples from a patient into an evacuated container comprising:

a housing having a forward end, rearward end and a chamber within, said housing being translucent at least around the chamber so that said chamber can be viewed by a user of said assembly;

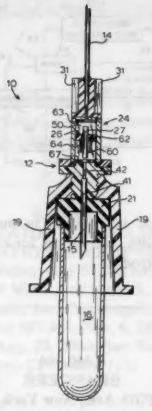
a first access opening through the forward end of said housing in fluid communication with said chamber;

a cannula extending outwardly from said first access opening in fluid communication with said chamber adapted for insertion into a patient;

a second access opening through the rearward end of said housing in fluid communication with said chamber;

an operable, resilient, normally closed one-way valve member positioned in said chamber including an operable element adapted to open and close depending upon the pressure differential across said operable element; and

an air permeable, blood impermeable porous plug mounted in said valve member and associated with said operable element so that said element closes against said plug and operatively opens by moving away from said plug,



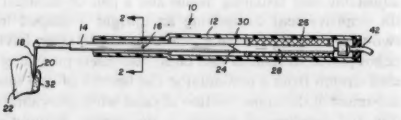
whereby when said cannula makes entry into the vein of a patient blood enters said chamber by forcing air therein through said porous plug, the blood in said chamber able to be viewed by the user through said translucent housing, with the blood adapted to remain in said chamber until said valve member opens under the influence of lower pressure at said second access opening.

4,340,069

FORCE-SENSITIVE PROBE AND METHOD OF USE

Ronald N. Yeaple, Middlesex, N.Y., assignor to Yeaple Corporation, Middlesex, N.Y.

Filed Oct. 17, 1979, Ser. No. 85,777
Int. Cl.[3] A61B *5/10*
U.S. Cl. 128—776 **28 Claims**



1. A force responsive periodontal probe for manually applying a predetermined probing force to the floor of a periodontal pocket, and for measuring the depth of the pocket when said predetermined probing force is applied, comprising:

a probe body;

a magnetizable member mounted within said body;

a movable lever mounted within said body and having a probe tip extending from said body which is insertable into the periodontal pocket, said probe tip having a periodontal pocket depth measuring scale placed thereon, said lever having a portion thereof formed from a magnetic material, and said lever further being movable between an engaged position in which said lever portion engages said member, and a disengaged position in which said lever portion is disengaged from said member; and

means for magnetizing said magnetizable member for attracting and releasably holding said lever portion in said engaged position with a preset magnetic force whereby when said probe tip is moved into engagement with the floor of the pocket, and the probing force, manually ap-

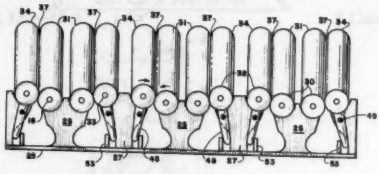
plied through said body and said probe tip to the floor of the pocket, is increased to said predetermined probing force, said preset magnetic force is overcome causing said lever to move relative to said body from said engaged position to said disengaged position whereupon the depth of said pocket can be observed on said scale on said probe tip at said predetermined probing force.

4,340,070

ROLL-HOLDING MEANS FOR A CORN-HUSKING BED

John Keitel, R.R. #1, Lyons, Ind. 47443

Filed Jul. 7, 1981, Ser. No. 281,057
Int. Cl.³ A01F *11/06*
U.S. Cl. 130—5 D **6 Claims**



1. In a corn-husking bed comprised of a number of parallel sloped elongated rolls, some of which are in tangential abutment, and means associated with the uppermost extremities of said rolls for supporting said rolls by their axles and causing rotation thereof, improved roll-holding means adapted for use at the lowermost extremities of said rolls comprising:

(a) an elongated rigid base,

(b) a number of spaced apart yokes extending upwardly from said base, said yokes being of a first type and second type disposed in alternating relationship, both types having a center plane of symmetry perpendicular to said base,

(c) said first type of yoke being provided with two fixed circular bearing means, the centers of which are equally spaced about said plane of symmetry and define a line parallel to said base,

(d) said second type of yoke having two moveable circular bearing means, the centers of which are equally spaced about said plane of symmetry and define a line parallel to said base,

(e) a lever pendantly associated with each moveable bearing means and attached by pivot means to said yoke,

(f) adjustable tensioning means associated with each yoke of said second type and adapted to engage said levers below said pivot means,

(g) whereby said moveable bearing means are urged toward said fixed bearing means, and the spaces between said yokes are capable of permitting passage therethrough of an ear of corn which may be in an upright position with respect to said rolls.

4,340,071

CHANGE-A-BOWL PIPE

Robert L. Smith, Rte. 1, Box 412, Burgaw, N.C. 28425

Division of Ser. No. 87,046, Oct. 22, 1979, Pat. No. 4,290,437.
This application Jun. 15, 1981, Ser. No. 273,323
Int. Cl.³ A24F *7/04*
U.S. Cl. 131—202 **8 Claims**

1. A smoking pipe comprising:

(a) a bowl;

(b) a bit member;

(c) a tubular stem member for attaching said bit to said bowl and having forward and rearward ends and a main body portion;

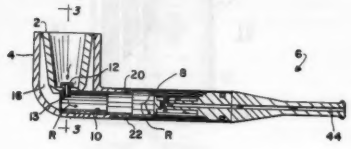
(d) a generally cylindrical removable retroverted-flow filter being positioned over said bit and within said stem;

(e) said bit member having a rearwardly projecting mouthpiece first portion; a generally tubular second portion projecting forward of said first portion and fitting telescopically within said stem, a bit third portion being coaxial with and extending forward from said second portion so as to form an annular shoulder, and a plug shaft cooperating with and extending forward of said third portion and having a forward end;

(f) means associated with said third portion for spacing said filter forwardly from said shoulder;

(g) said third portion and said plug shaft fitting telescopically within said filter;

(h) said filter being open at both ends and including a forwardmost end;



(i) the forward end of said plug shaft being a circular plate-like head wherein said plate-like head is in diameter essentially equal to the inside diameter of said filter and said plate-like head is essentially at said forwardmost end of said filter;

(j) a smoke duct through said bit and ending short of said plate-like head; and

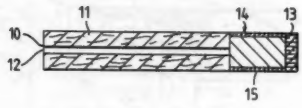
(k) an outlet opening in said plug shaft cooperating with said smoke duct and being generally rearward of said plate-like head.

4,340,072

SMOKEABLE DEVICE

Anthony J. N. Bolt, and Brian C. Chard, both of Bristol, England, assignors to Imperial Group Limited, London, England

Filed Nov. 12, 1980, Ser. No. 206,068
Int. Cl.³ A24D *1/00*
U.S. Cl. 131—273 **8 Claims**



1. A cigarette-simulating smokeable device for releasing an aerosol into the mouth of a smoker comprising:

(a) a rod of fuel having a longitudinally extending passage therethrough;

(b) a chamber in gaseous communication with an end of the passage whereby during smoking hot gases from the burning fuel rod enter the chamber

(c) inhalant material located in the chamber which, when contacted by the hot gases during smoking forms an aerosol for inhalation by the smoker,

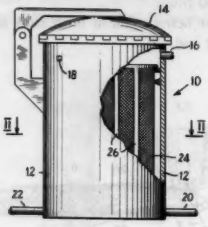
(d) the chamber having at an end remote from the fuel rod a mouth-end closure member which is permeable to the aerosol.

4,340,073

EXPANDING TOBACCO

Roger Z. de la Burde, Powhatan, and Patrick E. Aument, Hopewell, both of Va., assignors to Philip Morris, Incorporated, New York, N.Y.

Filed Feb. 12, 1974, Ser. No. 441,767
Int. Cl.[3] A24B *3/18*
U.S. Cl. 131—291 17 Claims



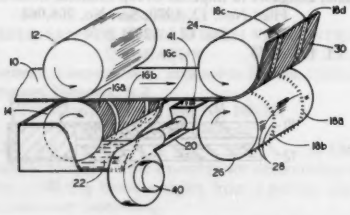
1. A process for expanding tobacco comprising the steps of (1) contacting tobacco with liquid carbon dioxide under conditions such that the temperature of the tobacco is maintained at a level no lower than about −2° C. and such that substantially all of the liquid carbon dioxide is maintained in liquid form to impregnate the tobacco with the liquid carbon dioxide, (2) subjecting the liquid carbon dioxide-impregnated tobacco to conditions such that the liquid carbon dioxide is converted to solid carbon dioxide and (3) thereafter subjecting the solid carbon dioxide-containing tobacco to conditions whereby the solid carbon dioxide is vaporized to cause expansion of the tobacco.

4,340,074

CIGARETTE MATERIAL HAVING NON-LIPSTICKING PROPERTIES

Thomas T. Tudor, Crestwood, Ky., assignor to Brown & Williamson Tobacco Corporation, Louisville, Ky.

Division of Ser. No. 92,149, Nov. 7, 1979, abandoned. This application Jan. 16, 1981, Ser. No. 225,582
Int. Cl.[3] A24D *1/04, 3/00, 3/18*
U.S. Cl. 131—362 3 Claims



1. A method of making a cigarette tipping material comprising the steps of:

(a) passing a sheet of tipping material through a means for adding a coating having non-lipsticking properties thereto in a preselected pattern, said means to add a coating including a pair of cooperating rollers, one of said rollers being a pressure roller, the other of said rollers being a rotogravure roller having an unengraved surface therein in preselected areas, said rollers being mounted in contacting relationship to receive said tipping material therebetween;

(b) drying the coating; and,

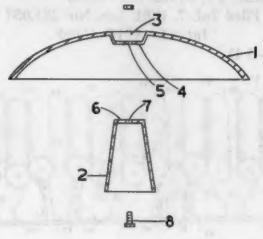
(c) passing the coated material through means to add perforations thereto.

4,340,075

SPACE-SAVING MUSHROOM FORM SUPPORT

John M. Medeiros, 244 Depot St., Bennington, Vt. 05201

Continuation of Ser. No. 24,471, Mar. 26, 1979. This application Feb. 9, 1981, Ser. No. 232,508
Int. Cl.[3] A45F *1/16*; A01G *13/00*
U.S. Cl. 135—15 PQ 3 Claims



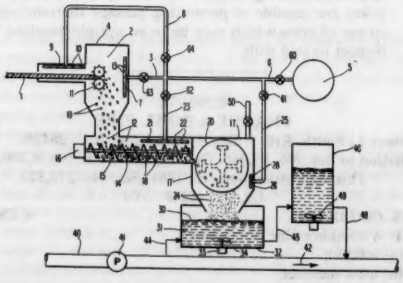
1. A combination of two parts, the first part being a convex mushroom-cap-shaped head, provided with a recess in the top center and an opening through the center for receiving a threaded bolt, and the second part being a slightly tapered tumbler-shaped hollow stem, provided with an opening through the center for receiving a threaded bolt; and the two parts when attached by compression of a threaded bolt yielding a mushroom-form support which is fitted onto a pole and used to support film or fabric to make a temporary shelter for plants; and, each of the two said parts fitting partly inside the volume of another of the same part when said parts are disassembled and stacked in sets for packaging or shelving or shipping or storage.

4,340,076

DISSOLVING POLYMERS IN COMPATIBLE LIQUIDS AND USES THEREOF

William Weitzen, Bethesda, Md., assignor to General Technology Applications, Inc., Arlington, Va.

Continuation-in-part of Ser. No. 15,680, Feb. 27, 1979, abandoned. This application Jan. 31, 1980, Ser. No. 117,235
Int. Cl.[3] F17D *1/16*
U.S. Cl. 137—13 21 Claims



1. Process for dissolving a high molecular weight hydrocarbon polymer in liquid hydrocarbons which comprises chilling to cryogenic temperature said polymer, comminuting the chilled polymer at cryogenic temperature to form discrete particles displaying a high surface energy state and contacting the so-formed particles at or near cryogenic temperature and

while in said high surface energy state with liquid hydrocarbons whereby the polymer particles are dissolved therein.

4,340,077

METHOD OF AND APPARATUS FOR REMOTELY CONTROLLING ORIFICE-OPENING AND ORIFICE-CLOSING OPERATIONS

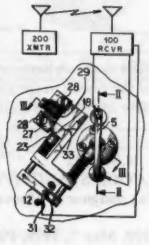
Peter Schiffer, Aachen; Ernst Heinrichs, Wassenberg, and Manfred Helten, Titz-Müntz, all of Fed. Rep. of Germany, assignors to Kernforschungsanlage Jülich GmbH, Jülich, Fed. Rep. of Germany

Filed Oct. 17, 1980, Ser. No. 198,130

Claims priority, application Fed. Rep. of Germany, Oct. 18, 1979, 2942118

Int. Cl.³ F16K *13/04*

U.S. Cl. 137—68 A **5 Claims**



1. An unblocking and blocking device comprising:

a support formed with an opening adapted to be unblocked and blocked by remote control:

primary closure means blocking said opening and including:

a primary closure element bearing on said support around said opening,

first spring means bearing on said primary element and biasing same away from said support,

at least one rod connected to said primary element and retaining same against said support, and

a first ignitable means cooperating with said rod and firable by remote control to sever said rod and release said primary element from said support whereby said first spring means drives said primary element away from said opening, and

secondary closure means including:

a secondary closure element spaced from said opening,

second spring means bearing upon said secondary element for urging same into alignment with said opening,

remotely controlled second ignitable means retaining said secondary element out of alignment with said opening until fired, and

a third spring means acting upon said secondary element for displacing same against said support around said opening to block the latter upon the firing of said second ignitable means.

4,340,078

TANK FOR A FLUID SYSTEM

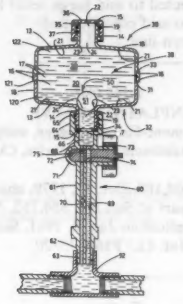
Harry M. Pasley, Fresno, Calif., assignor to Eaton Investment Company, Fresno, Calif., a part interest

Filed May 23, 1980, Ser. No. 152,640

Int. Cl.³ B05B *7/30*

U.S. Cl. 137—205.5 **12 Claims**

1. A tank for a fluid system which is pressurized in an operative mode and depressurized in an inoperative mode, the tank comprising a fluid tight vessel enclosing a chamber and having a substantially annular port communicating with the chamber; means for mounting the vessel in fluid transferring communication with the fluid system through the port and with said port disposed in substantially upwardly facing relation; and a substantially spherical flow control element captured in the chamber of the vessel and dimensioned gravitationally to seat in said annular port to allow passage of fluid through the port when the fluid system is in said operative mode and to seal said annular port substantially to prevent the passage of fluid from the chamber through the port when the fluid system is in said



inoperative mode and wherein there is a variation in dimension between the substantially annular port and the fluid control element such that when said element is seated in the port, depressurization of the fluid system from said operative mode causes pressure to be purged from the chamber prior to sealing of the port in the inoperative mode.

4,340,079

ENERGY DISSIPATING PIPELINE SURGE RELIEF SYSTEM

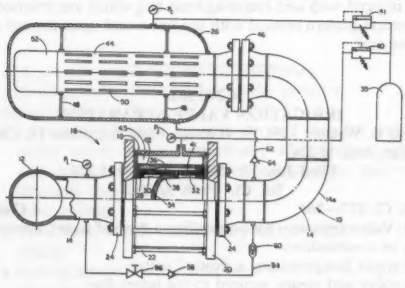
Bryan Smith, Rawdon; Andrew E. Keech, Roundhay, and Patricia A. Dawson, Gledhow, all of England, assignors to Grove Valve and Regulator Company, Oakland, Calif.

Continuation-in-part of Ser. No. 80,074, Sep. 28, 1979, abandoned. This application May 14, 1980, Ser. No. 149,701

Claims priority, application United Kingdom, Feb. 15, 1980, 80005189

Int. Cl.³ G05D *11/13*

U.S. Cl. 137—207 **26 Claims**



1. A closed pressure surge relief system for a liquid transporting pipeline comprising:

a surge relief line adapted for connection at one end of a pipeline;

a surge relief flow-blocking member in said relief line near the upstream end thereof;

said member being conditioned to open quickly to large capacity flow when the pressure of fluid in said relief line reaches rises to a predetermined, fixed safe limit level above normal pipeline pressure and to close when said pressure drops to said safe level, thereby isolating a volumetric quantity of liquid from said pipeline;

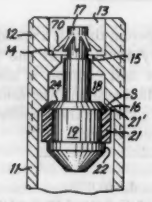
means for modulating flow through said members;
a closed receptacle connected to the other end of said relief line;
said surge relief line and said closed receptacle being of sufficient volume to accommodate said isolated quantity of liquid;
means in said receptacle to stop flow smoothly;
a return line connected to said surge relief line and adapted for connection to said pipeline; and
a valve in said return line.

4,340,080

INFLATION VALVE

Jean Lefrancois, Clermont-Ferran, France, assignor to Compagnie Generale des Etablissements Michelin, Clermont-Ferrand, France

Division of Ser. No. 104,188, Dec. 17, 1979, abandoned, which is a continuation-in-part of Ser. No. 884,752, Mar. 9, 1978, abandoned. This application Jan. 9, 1981, Ser. No. 223,576
Int. Cl.³ F16K *15/20*
U.S. Cl. 137—223 **1 Claim**



1. An inflation valve comprising an outer tubule with a conical valve seat and a single inner movable unit, which unit includes a valve proper, a rod and a retaining head and is confined axially within the tubule, the valve proper having a conical stop for engagement of the conical stop and the valve proper with the conical valve seat when the inflation valve is in final valve-closed position, said valve being characterized by the fact that the head of the inner movable unit has a plurality of axially rigid and radially deformable elastic tongues which are integral with said retaining head and which are oriented in a conical pattern coaxial with the valve and open toward the valve seat.

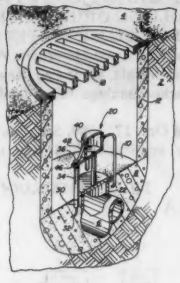
4,340,081

IRRIGATION VALVE APPARATUS

Wade B. Watson, 1256 W. Williams Field Rd., Suite 11, Chandler, Ariz. 85224

Filed Jun. 20, 1980, Ser. No. 161,278
Int. Cl.³ F16K *31/122*
U.S. Cl. 137—364 **4 Claims**

1. Valve apparatus for controlling a flow of water, comprising, in combination:
a water line providing a flow of water;
a valve seat means secured to the water line;
base means including a base secured to the water line and to the valve seat means and a pipe disposed on the base for receiving the flow of water from the water line;
cylinder means disposed adjacent to the valve seat means and within the pipe, including
a cylinder spaced apart from the valve seat means, and
spacer means secured to the base and to the cylinder for supporting the cylinder spaced apart from the valve seat means within the pipe;
a piston movable in the cylinder of the cylinder means;
a rod connected to the piston;
a valve plate disposed within the spacer means and secured to the rod remote from the piston and movable therewith from a closed position against the valve seat means to an open position away from the valve seat means in response to the flow of water against the valve plate and in response to movement of the piston in the cylinder means; and



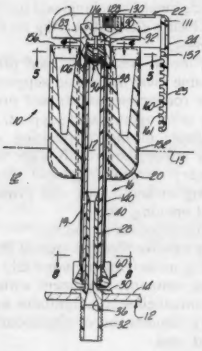
pressure means connected to the cylinder means for controlling the movement of the piston in the cylinder and movement of the valve plate in response to the flow of water.

4,340,082

ADJUSTABLE BALLCOCK STANDPIPE ASSEMBLY

Albert E. Straus, Erie, Pa., assignor to Hoover Universal, Inc., Saline, Mich.

Division of Ser. No. 36,399, May 7, 1979, Pat. No. 4,286,619. This application May 8, 1981, Ser. No. 261,779
Int. Cl.³ F16K *31/26*
U.S. Cl. 137—426 **6 Claims**



1. A ballcock assembly for controlling the supply of liquid to a liquid storage tank comprising:
a standpipe for conveying liquid to said tank,
valve means on said standpipe for controlling the delivery of liquid to said tank,
said standpipe comprising aligned tubular members interfitted in a telescoping relationship enabling the positioning of said valve means at selected heights in said tank, and
lock means to secure said interfitted tubular members in an adjusted relative position, said lock means comprising means forming an open-ended cavity in one end of the outer one of said interfitted tubular members, said cavity surrounding the inner one of said interfitted tubular members, an expandable and contractible ring member disposed in said cavity essentially surrounding said inner tubular member, a lock nut axially movable on and releasably secured to said one end of said outer tubular member, an elastomeric gasket member surrounding said inner tubular member and responsive to axial movement of said lock nut for axially engaging said

ring member through said open-ended cavity when said lock nut is axially mounted on and secured to said outer tubular member, and shoulder means in said cavity against which said ring member is urged when said lock nut is mounted onto said one end of said tubular member, the axial movement of said lock nut onto said outer tubular member contracting said ring member to secure said tubular members in fixed relative positions.

4,340,083

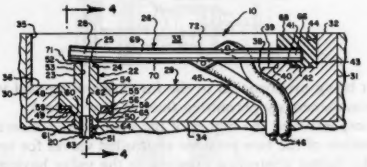
DEFLECTABLE BEAM VALVE

Richard D. Cummins, Orchard Park, N.Y., assignor to Carleton Controls Corporation, East Aurora, N.Y.

Continuation-in-part of Ser. No. 964,948, Nov. 30, 1978, abandoned. This application Feb. 11, 1980, Ser. No. 120,054

Int. Cl.³ F16K *31/04, 17/30*

U.S. Cl. 137—499 **9 Claims**



1. A valve, comprising:

a member having a passageway therethrough and having a marginal end portion arranged to provide a valve seat about one end of said passageway;

a piezoelectric beam arranged on the upstream side of said member and having a deflectable portion mounted for movement toward and away from said seat, said deflectable portion being selectively movable away from said seat toward an initially commanded position, the magnitude of the pressure differential across said member exerting a closing force which urges said deflectable portion to move away from said commanded position toward said seat, said beam having a spring rate such that said deflectable portion will move further away from said seat as said pressure differential decreases to permit a substantially constant flow of fluid through said passageway over a working range of differential pressure across said valve when said deflectable portion has been moved away from said seat; and

control means operatively arranged to supply an electrical signal to said beam for selectively causing said deflectable portion to move away from said seat;

whereby the position of said deflectable portion relative to said seat may control a flow of fluid through said passageway.

4,340,084

CHECK VALVE

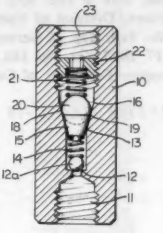
John P. Snow, Sagamore Hills, Ohio, assignor to Houdaille Industries, Inc., Ft. Lauderdale, Fla.

Filed Aug. 28, 1980, Ser. No. 182,235

Int. Cl.³ F16K *15/04*

U.S. Cl. 137—512 **10 Claims**

1. In a ball valve having a valve body with a passageway therethrough, the passageway including a circumferential restricting valve seat, and a ball spring urged against said seat to provide a seal, the improvement of said valve seat being a frustoconical seat, a frustoconical metallic back-up member having a large diameter axial end of greater diameter than the small diameter of the seat, and a small diameter axial end of smaller diameter than the large diameter of the seat and a large diameter axial end face, the large diameter axial end face having a central depression therein, and the ball being an elastomeric ball, the back-up member insertable into the seat and seatable therein and being axially movable with respect



thereto, the spring urging the ball against the depression and the back-up member against the seat.

4,340,085

PRESSURE REGULATING DEVICE WITH DAMPING MEANS FOR PREVENTING VALVE CHATTER

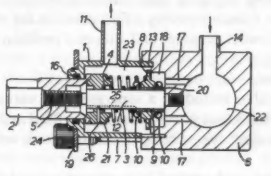
Ronald H. Crawford, 21, Millard Close, Basingstoke, Hampshire, and Alan W. Kent, 9, Lakeland Dr., Frimley, Camberley, Surrey, both of England

Filed Apr. 22, 1980, Ser. No. 142,843

Claims priority, application United Kingdom, May 1, 1979, 7915121

Int. Cl.³ F16K *15/02*

U.S. Cl. 137—514 **10 Claims**



1. A pressure regulating device comprising

a chamber for receiving a fluid under pressure;

an outlet for the fluid; and

a valve assembly disposed between said chamber and said outlet which opens automatically when the pressure in said chamber exceeds a predetermined value, said valve assembly comprising:

a valve casing;

a valve stem which is fixed in position within said valve casing;

a bushing mounted about said valve stem for free axial sliding movement thereon;

a valve disc mounted about said bushing for axial sliding movement thereon;

a valve seat adjacent the end of said valve stem nearest said chamber;

biasing means for urging said valve disc towards engagement with said valve seat against the pressure of fluid in said chamber; and

a flexible and resilient coupling arrangement which interconnects said valve disc and said bushing so as to accomodate the axial sliding movement therebetween while also providing damping of the movement of said valve disc relative to said bushing to prevent valve chatter.

4,340,086

HYDRAULIC CONTROL VALVE UNIT

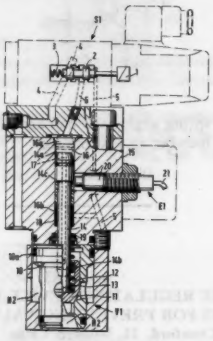
Ansgar Hemm, Usingen, and Harald Deppner-Hiemesch, Bad Homburg von der Hohe, both of Fed. Rep. of Germany, assignors to Sperry Vickers, Division of Sperry GmbH, Bad Homburg von der Hohe, Fed. Rep. of Germany

Filed Apr. 17, 1980, Ser. No. 141,128

Claims priority, application Fed. Rep. of Germany, Apr. 19, 1979, 2915783

Int. Cl.³ F16K *37/00, 15/18*

U.S. Cl. 137—554 4 Claims



1. Valving apparatus comprising

a main valve,

said main valve including a main valve housing having a valve bore and inlet and outlet passages therein,

a first differential piston as a closure member slidable in said bore,

a valve spring engaging said closure member,

said closure member having a first position for shutting said inlet and outlet passages and a second position for opening the same,

a pilot valve,

said pilot valve including a separate pilot valve housing, a valve spool, a first duct for supplying fluid under pressure, a second duct for venting fluid to a tank and a control duct,

a control line, said control line connecting said control duct of said pilot valve to said closure member of said main valve and including

a second differential piston slidable in a connecting bore,

said second differential piston having a relatively larger piston area, a relatively smaller piston area and a longitudinal bore interconnecting both piston areas and forming a part of said control line,

said relatively larger piston area facing said pilot valve, said relatively smaller piston area facing said main valve and cooperating with said closure member for following said first and second positions thereof and taking first and second positions, if there is fluid under pressure in the control line,

and electric means for monitoring said positions of said second differential piston.

4,340,087

POWER TRANSMISSION

Yehia El-Ibiary, Troy, Mich., assignor to Sperry Corporation, Troy, Mich.

Filed Aug. 21, 1980, Ser. No. 179,947

Int. Cl.³ F15B *13/043*

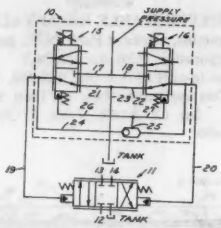
U.S. Cl. 137—625.64 20 Claims

11. A hydraulic remote controller for use in piloting the operation of a hydraulic control valve comprising

a pair of selectively operated three-way pressure control valves,

each control valve having a supply pressure inlet and a controlled pressure outlet and being operable in the normal position to prevent flow from said supply inlet to said controlled pressure outlet and connect said outlet to tank,

each said valve being operable to permit fluid to flow from the inlet to the controlled pressure outlet, the pressure at said



outlet being proportional to the force operating said valve and simultaneously permitting fluid to flow to tank,

means responsive to the higher of the controlled pressures of the outlets of the two pressure controlled valves for applying the higher controlled pressure to the valve having the lower controlled pressure to operate the valve having the lower controlled pressure in direction increasing the passage of fluid through the other valve to tank.

4,340,088

PRESSURE BALANCED SAFETY VALVE FOR WELLS AND FLOW LINES

Bernard H. Geisow, Houston, Tex., assignor to Daniel Industries, Inc., Houston, Tex.

Filed Jun. 9, 1980, Ser. No. 157,377

Int. Cl.³ E21B *43/12*

U.S. Cl. 137—629 35 Claims

1. A safety valve mechanism for controlling fluid through a conduit, said safety valve mechanism comprising:

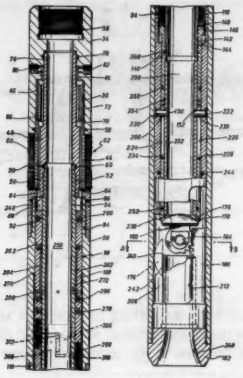
a valve housing having a flow passage defined thereby, said valve housing defining a valve chamber and a protective receptacle in communication with said flow passage and valve chamber and located outwardly of said flow passage;

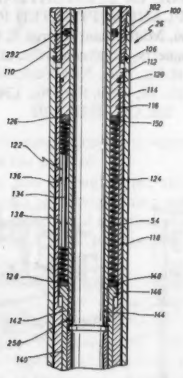
valve seat means being located within said valve chamber about said flow passage and defining a seat surface;

a valve element being movably positioned within said valve chamber and being linearly movable into seated engagement with said seat surface during closing movement thereof and being movable linearly away from said seat surface during opening movement thereof, said valve element being rotatably and linearly movable to a protected position within said protective receptable and in said protected position being out of the flow path of fluid flowing through said valve mechanism;

valve actuator means being contained within said valve housing, said valve actuator means being operatively interconnected with said valve element and inducing selective opening and closing movement of said valve element into and out of said seated engagement with said seat surface and inducing movement of said valve element into said protective receptacle during opening of said valve and causing movement of said valve element from said protective receptacle into said seated engagement with said seat surface during closing movement of said valve element, said valve actuator means communicating pressure from said valve chamber upstream of said valve element to the downstream portion of said valve element during initial opening movement of said valve actuator means and causing substantial dissipation of pressure induced resultant forces tending to maintain said valve element in the closed position thereof;

first actuator power means normally urging said valve element toward the closed position thereof; and





second actuator power means being operative to overcome said first actuator power means and impart opening movement to said valve actuator means and valve element and to maintain said valve element in the open position thereof.

4,340,089

BELLOWS ELEMENT

Dietlof Freiherr von Arnim, Karlsruhe, and Rolf Dahn, Bretten-Dürenbüchig, both of Fed. Rep. of Germany, assignors to IWK Regler und Kompensatoren GmbH, Stutensee, Fed. Rep. of Germany

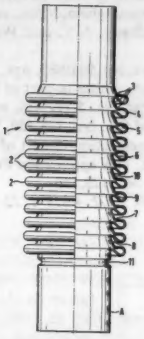
Filed Sep. 24, 1980, Ser. No. 190,262

Claims priority, application Fed. Rep. of Germany, Nov. 29, 1979, 2948065

Int. Cl.³ F16L *11/11*

U.S. Cl. 138—121 **6 Claims**

1. A tubular bellows element having a plurality of corrugations successively arranged in concentric fashion about the axis of said tubular element, each corrugation having an outer end, an inner end, and flanks connecting said outer and inner ends, adjacent corrugations being separated by substantially annular spaces which narrow adjacent said inner corrugation ends, each inner corrugation end being substantially conical and including a substantially flat portion, said flat portions together



forming a substantially smooth inner surface for guiding fluid flow in a predetermined direction.

4,340,090

SILICONE COMPOSITIONS FOR THE TREATMENT OF GLASS FIBERS AND METHODS OF TREATMENT

Takao Matsushita, Kisarazu, and Kazuo Hirai, Ichihara, both of Japan, assignors to Toray Silicone Company, Ltd., Tokyo, Japan

Continuation-in-part of Ser. No. 146,555, May 5, 1980, abandoned. This application Aug. 21, 1981, Ser. No. 295,184

Claims priority, application Japan, May 16, 1979, 54-59088

Int. Cl.³ D03D *43/00*; B05D *3/02*

U.S. Cl. 138—177 **21 Claims**

10. A method of treating glass fibers comprising

(I) mixing the following ingredients to make a silicone composition

(A) 100 parts by weight of a triorganosiloxy endblocked polydiorganosiloxane in which each organic group is selected from methyl, vinyl, and phenyl, there being at least two vinyl groups per molecule, there being no more than 20 mol percent phenyl groups based on the total number of moles or organic groups in the polydiorganosiloxane and said polyorganosiloxane having a viscosity of at least 0.1 m^2/s measured at 25° C.

(B) an amount of organohydrogenpolysiloxane sufficient to provide at least 1.5 silicon-bonded hydrogen atoms per vinyl group in (A), said organohydrogenpolysiloxane having at least two silicon-bonded hydrogen atoms per molecule, and the organohydrogensiloxane having organic groups selected from methyl and phenyl,

(C) from 10 to 100 parts by weight of a silica filler having a relative surface area of at least 50 m^2/g and having been treated with dimethyldichlorosilane for hydrophobicity, and

(D) a catalytic amount of a platinum catalyst,

(II) dispersing the silicone composition obtained in step (I) in an organic solvent to make a treatment solution,

(III) coating glass fibers with the treatment solution obtained in step (II) to make treated glass fibers, and

(IV) heating the treated glass fibers to cure the silicone composition

14. The method in accordance with claim **10** in which the glass fiber is in the form of glass sleeving.

20. A treated glass sleeving prepared by the method of claim **14**.

4,340,091

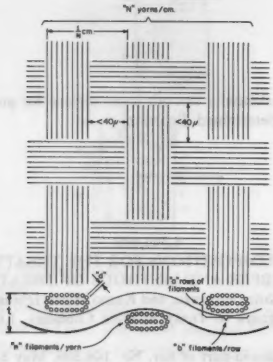
ELASTOMERIC SHEET MATERIALS FOR HEART VALVE AND OTHER PROSTHETIC IMPLANTS

John Skelton, Sharon, Mass.; Richard E. Clark, St. Louis, Mo., and Robert B. Davis, Framingham, Mass., assignors to Albany International Corp., Albany, N.Y. and Washington University, St. Louis, Mo.

Continuation-in-part of Ser. No. 901,085, Apr. 28, 1978, Pat. No. 4,191,218, which is a continuation-in-part of Ser. No. 790,442, Apr. 25, 1977, Pat. No. 4,192,020, which is a continuation-in-part of Ser. No. 771,359, Feb. 23, 1977, abandoned, which is a continuation-in-part of Ser. No. 575,438, May 7, 1975, abandoned. This application Feb. 27, 1980, Ser. No. 125,120

Int. Cl.³ D03D *7/00, 3/02;* **A61F** *1/22;* **D04C** *1/00*

U.S. Cl. 139—383 R **11 Claims**



1. A flexible and extensible textile sheet material for cardiovascular and prosthetic implants, said sheet material consisting of warp yarns and yarns interlaced therewith, said yarns comprising a synthetic elastomer and forming a fibrous reticular blood-contacting face wherein at least 50 percent of the superficial area contains a substantially uniform distribution of foramina having a maximum lateral aperture dimension of 40 microns, said yarns having an average tensile modulus up to a strain of 10% which is between 0.05 and 5.0 grams per denier.

4,340,092

METHODS OF AND APPARATUS FOR STRAIGHTENING BACKPLANE-SUPPORTED PINS

William M. Chisholm, Midlothian, Va., assignor to Western Electric Co., Inc., New York, N.Y.

Filed Feb. 26, 1980, Ser. No. 124,662

Int. Cl.³ B21F *1/02*

U.S. Cl. 140—147 **25 Claims**

1. A method of straightening pins supported in a backplane, which comprises the steps of:

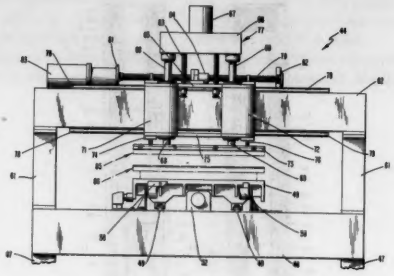
securing the backplane in a pin straightening assembly with the pins extending from the backplane and tips of the pins being fully exposed within the assembly;

capturing the tips of the pins only within a first planar surface of the pin straightening assembly;

providing relative reciprocating motion in a first direction between the first planar surface and the backplane to straighten the pins in the first direction;

withdrawing the tips of the pins from within the first planar surface while the backplane remains secured within the pin straightening assembly to again fully expose the tips of the pins;

capturing the tips of the pins only within a second planar surface of the pin straightening assembly which is recessed planarly from the first planar surface in a direction away from the pins to be straightened; and



providing relative reciprocating motion in a second direction between the second planar surface and the backplane to straighten the pins in the second direction.

4,340,093

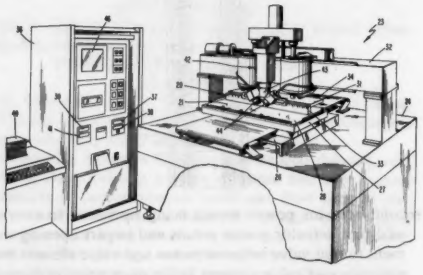
METHOD OF STRAIGHTENING BACKPLANE-SUPPORTED PINS

William M. Chisholm, Midlothian; George S. Davis, Richmond, and James C. Dougherty, Mechanicsville, all of Va., assignors to Western Electric Co., Inc., New York, N.Y.

Filed Feb. 26, 1980, Ser. No. 124,677

Int. Cl.³ B21F *1/02*

U.S. Cl. 140—147 **9 Claims**



1. A method of straightening pins supported in a backplane, which comprises the steps of:

establishing within a pin straightening apparatus a standard pin straightening amplitude between spaced values having opposite end limit settings selected from a scale of values which set the limits between which a pin straightening assembly travels within the apparatus;

developing a table of values which represent selectable adjustment settings for at least one of the end limit settings where the values of the table are based on (1) a range of mean deviations from nominal of a statistical sample of the pins and (2) the end limit setting;

processing the pins through a pin straightening operation using the standard pin straightening amplitude;

measuring the centroids of a statistical sample of the pins to obtain measured data representing pin deviation from nominal;

calculating a mean deviation from nominal by using the measured data;

reviewing the table of values and selecting therefrom an adjustment setting based on the calculated mean deviation;

automatically adjusting the straightening amplitude within

the pin straightening apparatus in accordance with the selected adjustment setting; and

processing the pins through another pin straightening operation using the adjusted pin straightening amplitude.

4,340,094

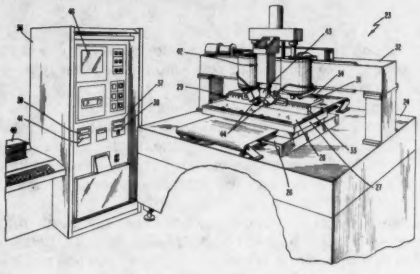
METHODS OF STRAIGHTENING BACKPLANE-SUPPORTED PINS

William M. Chisholm, Midlothian, and James C. Dougherty, Mechanicsville, both of Va., assignors to Western Electric Co., Inc., New York, N.Y.

Filed Feb. 26, 1980, Ser. No. 124,683

Int. Cl.³ B21F *1/02*

U.S. Cl. 140—147 **8 Claims**



1. A method of straightening pins supported in a backplane, which comprises the steps of:

processing the pins through a pin straightening operation using a selected pin straightening amplitude;

measuring the centroids of a statistical sample of the pins to obtain measured data representing pin deviaion from nominal;

calculating a mean deviation from nominal by using the measured data;

manually adjusting the straightening amplitude based on the calculated mean deviation; and

processing the pins through another pin straightening operation using the adjusted pin straightening amplitude.

4,340,095

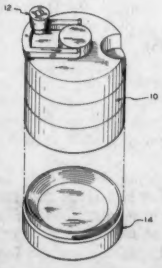
MATERIAL TRANSFERRING APPARATUS

John D. Dale, 1211 W. Rovey, and David G. Knotter, 4634 N. 44th St., both of Phoenix, Ariz.

Filed Sep. 17, 1979, Ser. No. 76,072

Int. Cl.³ B65B *1/06*

U.S. Cl. 141—1 **3 Claims**



1. A method of transferring pulverized material from a pulverizer to a small jar comprising the following steps:

pulverizing a material in a pulverizer having a removably attached collecting plate;

gathering said pulverized material in said collecting plate;

detaching said collecting plate from said pulverizer;

attaching said collecting plate to a funnel having a narrow end and a broad end, said collecting plate being attached to said broad end of said funnel;

attaching the mouth of a jar to the narrow end of said funnel;

inverting said funnel, said collecting plate, and said jar, thereby transferring said pulverized material from said collecting plate to said jar;

removing said jar from said funnel; and attaching a cap to said jar.

4,340,096

FEED DEVICE AND METHOD FOR SUPPLYING FREE-FLOWING MATERIAL TO A CONTAINER

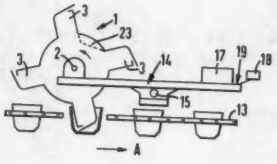
James R. Stoddard, Mold, Wales, assignor to J. Stoddard & Sons Limited, Clwyd, Wales

Filed Oct. 23, 1980, Ser. No. 199,827

Claims priority, application United Kingdom, Oct. 26, 1979, 7937159

Int. Cl.³ B65B *1/04*

U.S. Cl. 141—1 **8 Claims**



5. A method of supplying free-flowing material to a container comprising the steps of providing a rotatable feed device including at least one feed chamber having a feed outlet, supplying free-flowing material to the feed chamber, rotating the feed device so that the feed chamber passes into a container moving in synchronism relative to the feed device and dispensing free-flowing material from the feed chamber by providing the feed outlet with a feed direction transverse to the radius extending between the axis of the feed device and the feed outlet whereby material is not supplied to the container until the feed outlet is disposed within the container and whereby the feed outlet is closed by the material during filling.

4,340,097

CONNECTOR MEMBER FOR SEALED CONDUITS

David W. Ammann, Boulder, Colo., and Daniel B. Granzow, Ingleside, Ill., assignors to Baxter Travenol Laboratories, Inc., Deerfield, Ill.

Continuation of Ser. No. 5,749, Jan. 23, 1979, Pat. No. 4,265,280. This application Jan. 5, 1981, Ser. No. 222,395

Int. Cl.³ B65B *3/04*

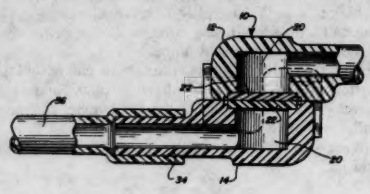
U.S. Cl. 141—98 **18 Claims**

2. A member for sealingly connecting the end portions of a pair of conduits, said member comprising

housing means having transparent walls enclosing a hollow interior and including spaced first and second passage means each communicating with said hollow interior and each adapted for communication with a respective conduit end portion, and

meltable opaque wall means extending across said hollow interior in the interval between said spaced first and second passage means and in a generally nonparallel direction relative to the axis of at least one of said first and second passage means, said opaque wall means being operative for normally blocking flow communication between said first and second passage means through said hollow inte-

rior and for forming, in response to the subsequent application of radiant energy to melt said opaque wall means,



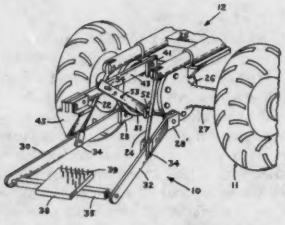
an opening establishing flow communication between said first and second passage means through said hollow interior.

4,340,098

LOG SPLITTER AND ATTACHMENT FOR TRACTOR

George K. Scott, 111 Rte. 306, Suffern, N.Y. 10901

Filed Nov. 3, 1980, Ser. No. 203,599
Int. Cl.³ B27L 7/00
U.S. Cl. 144—193 A 8 Claims



1. A log splitter adapted for removable attachment to the rear of a tractor or similar vehicle comprising:

(a) a first and a second hoist bar each mounted pivotably to the rear of said vehicle and extending outwardly therefrom in spaced apart relationship to one another;

(b) a draw bar attached fixedly between the outermost ends of said hoist bars, and having a base plate mounted thereto;

(c) a splitter bar mounted pivotably to the rear of said vehicle and extending outwardly therefrom, said splitter bar being essentially central to the hoist bars and having a splitter blade proximate to its outer end;

the log splitter characterized by:

(d) a support rod mounted pivotably to the rear of said vehicle and extending outwardly therefrom, said rod adapted along its length for adjustable connection to the splitter bar so that the height of the splitter bar can be fixedly defined;

(e) means for preventing lateral movement of the splitter bar, and

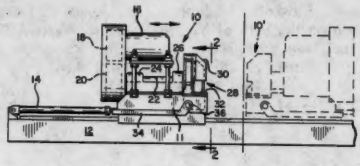
(f) means for elevating the hoist bars, whereby a log vertically placed between the plate and the blade is split longitudinally by the application of an upward force against the stationary blade.

4,340,099

CHIPPER MACHINE

Joseph J. Lomnicki, Portland, and Donald A. Miller, Tigard, both of Oreg., assignors to Mainland Industries, Inc., Lake Oswego, Oreg.

Filed Aug. 5, 1980, Ser. No. 175,527
Int. Cl.³ B27C 9/00
U.S. Cl. 144—220 5 Claims



1. A chipper machine for simultaneously forming a flat surface on a workpiece and comminuting material removed from the workpiece, comprising:

(a) a rotatable mandrel having a tapered arbor;

(b) a rotary chipper head mounted on said tapered arbor, said chipper head having a plurality of individually removable chipper knives mounted thereon, and said chipper head also having a hub including a tapered socket for matingly fitting on said tapered arbor;

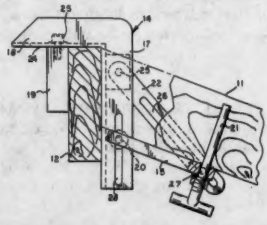
(c) anvil means for supporting a workpiece in position for being engaged by said chipper head, a drop front portion of said anvil means being movable between a first position, in which said drop front portion partially surrounds said chipper head preventing its removal from said arbor, and a second position providing sufficient clearance for removal of said chipper head from said arbor.

4,340,100

RAFTER SUPPORT JIG

George D. Anderson, II, 1004 Oregon Ave., Erie, Pa. 16505

Filed Oct. 10, 1980, Ser. No. 195,882
Int. Cl.³ B27M 3/02
U.S. Cl. 145—1 R 7 Claims



1. A jig (10) for holding a rafter (11) in place on a ridge pole (12) comprising a ridge pole bracket (14),

a rafter support (15),

and a brace (16),

said ridge pole bracket having a first part (17) and a second part (18),

said first part (17) and said second part (18) being rigidly fixed together and disposed generally at right angles to each other,

said first part extending downwardly and being adapted to rest on one side of said ridge pole (12), said second part (18) being adapted to rest on top of said ridge pole,

a third part (19) of said ridge pole bracket fixed to said second part and spaced from said first part (17) and extending downward generally parallel thereto,

said first part (17) and said third part (18) receiving said ridge pole therebetween,

pivot means (20) swingably connecting said rafter support to said first part of said ridge pole bracket and a pin means (21) extending upwardly from said rafter support and adapted to engage one side of said rafter,

and said brace (22) swingably connected to said first part of said ridge pole bracket and to said rafter support (15) for holding said ridge pole in predetermined position to said rafter bracket.

4,340,101

NAILING TOOL

Anton Schär, Schönenbergstrasse 42, CH-8820 Wädenswil, Switzerland

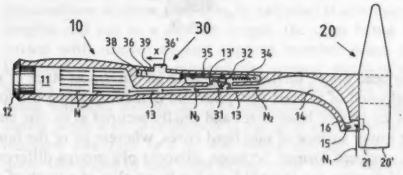
PCT No. PCT/CH79/00120, § 371 Date May 8, 1980, § 102(e) Date May 2, 1980, PCT Pub. No. WO80/00547, PCT Pub. Date Apr. 3, 1980

PCT Filed Sep. 6, 1979, Ser. No. 195,141

Claims priority, application Switzerland, Sep. 8, 1978, 9450/78

Int. Cl.³ B25C *1/00*

U.S. Cl. 145—30 R **7 Claims**



1. A magazine hammer comprising an elongated handle having a head fixedly attached to one end of said handle, an elongated guide passage disposed entirely within said handle, said guide passage including a first portion extending in the direction of elongation of said handle toward said head and a second portion which is adapted to reorient nails which have passed through the first portion of said guide passage, a supply of nails in communication with said guide passage, means for feeding nails from said supply through said guide passage toward said head, and a setting device located adjacent the downstream end of said second portion of said guide passage for use in setting a nail into a workpiece preliminary to its being driven into said workpiece by the head of said hammer; said supply comprising a cavity disposed entirely within said handle at the end of said handle remote from said head, said cavity being dimensioned to retain a plurality of nails therein which are oriented respectively in the direction of elongation of said handle and with the heads of said nails facing toward said remote end of said handle, said first portion of said guide passage communicating with said cavity and being dimensioned to admit only one nail at a time, in the direction of elongation of said nail, from said supply for passage under the influence of gravity toward said second portion of said guide passage; said feeding means comprising a member pivotally mounted within said handle adjacent said first portion of said guide passage and carrying thereon a pair of tongues which are spaced from one another in the direction of elongation of said handle, said tongues each extending toward said guide passage and being arranged so that one or the other of said tongues extends into and across said first portion of said guide passage in dependence upon the pivotal position of said member whereby, when the downstream one of said tongues extends across said first portion of said guide passage the movement of nails toward said second portion of said guide passage is blocked, and subsequent variation in the pivotal position of said member operates to displace the downstream one of said tonges out of said first portion of said guide passage to permit movement under the influence of gravity of a single nail past said downstream tongue toward said second portion of said guide passage while the upstream one of said tongues is simultaneously displaced into said first portion of said guide passage to block movement of a next subsequent nail toward said second portion of said guide passage; said second portion of said guide passage comprising a curved cavity the upstream end of which communicates with the downstream end of said first portion of said guide passage, the downstream end of said curved cavity being open at a position adjacent to but rearward of the striking face of said head; said setting device comprising an auxiliary striking surface extending generally parallel to but rearward of and laterally displaced from the striking face of said head at a position adjacent to and laterally displaced from the downstream open end of said curved cavity, and a permanent magnet mounted in fixed stationary position relative to said handle and head adjacent said auxiliary striking surface and operative to laterally displace each nail after it has emerged under the influence of gravity from the downstream open end of said curved cavity into a position wherein the head of said nail is disposed in directly facing relation to said auxiliary striking surface.

4,340,102

GOLF CLUB BAGS

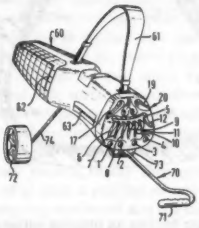
John R. Isabel, 15 Victoria Ave., Grays, Essex, England

Filed Jan. 7, 1981, Ser. No. 223,106

Claims priority, application United Kingdom, Jan. 7, 1980, 8000436

Int. Cl.³ A63B *55/00*

U.S. Cl. 150—1.5 R **24 Claims**



1. A golf club bag comprising a head defining apertures to accommodate a set of inverted golf clubs in a pre-arranged fashion, and a bottom comprising shaft-retaining means to hold the shaft of seven inverted irons in an arcuate fan-like arrangement, one of the apertures in the head being of curved elongate shape and being arranged to accommodate the seven inverted irons in a row and being disposed centrally of the other apertures in the head to provide a balanced weight distribution to said bag, the head also defining shaped elongate recesses extending transversely of the said curved elongate aperture to seat the blade of each of the seven irons in order to resist any rotational movement of each said iron.

4,340,103

POROUS TREAD AND METHOD OF MAKING SAME

Nils-Ake Nilsson, Erikslundsvägen 348, Täby, Sweden (S-183 44)

PCT No. PCT/SE79/00151, § 371 Date Mar. 7, 1980, § 102(e) Date Mar. 7, 1980, PCT Pub. No. WO80/00233, PCT Pub. Date Feb. 21, 1980

PCT Filed Jul. 10, 1979, Ser. No. 190,766

Claims priority, application Sweden, Jul. 10, 1978, 7807694

Int. Cl.³ B60C *11/00*; B29H *17/02*

U.S. Cl. 152—209 R **8 Claims**

1. A vehicle tire having a road-contacting portion of tire material adapted for contact with a road surface, said road contacting portion comprising:

granules of tire material wherein said granules are partially

fused together by vulcanization to leave interconnecting pores therebetween;

said interconnecting pores being operative to permit atmospheric air to flow through said interconnecting pores in said road contacting portion.

4,340,104

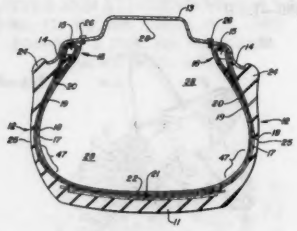
DEFLATED TIRE LUBRICANT

Tiong H. Kuan, Stow, Ohio, assignor to The General Tire & Rubber Company, Akron, Ohio

Continuation of Ser. No. 920,673, Jun. 30, 1978, abandoned. This application Mar. 28, 1980, Ser. No. 134,832

Int. Cl.³ B60C *17/00, 5/12*

U.S. Cl. 152—330 L **4 Claims**



1. A pneumatic tire having an interior surface mounted on a rim to define an inflation chamber, the rim having means to prevent the tire beads from becoming dislodged from the rim when the tire is operated in a deflated condition, wherein the improvement comprises:

a solid coating matrix on the interior surface of the tire selected from the group consisting of polyesters, polyureas, and polyurethanes which coating matrix does not begin to flow on the surface of the tire and adversely effect the balance of the tire until the heat generated by the tire running flat causes the tire to reach a temperature of between 65 degrees C. and 150 degrees C. and liquify the matrix.

4,340,105

HEAVY LOAD TIRE WITH PLURAL PLY GROUPS OF DIFFERENT CORD DIAMETER

Masaru Abe, Sayama, Japan, assignor to Bridgestone Tire Company Limited, Tokyo, Japan

Continuation of Ser. No. 49,857, Jun. 19, 1979, abandoned. This application Feb. 27, 1981, Ser. No. 238,798

Claims priority, application Japan, Jun. 22, 1978, 53-75676

Int. Cl.³ B60C *9/06, 15/00*

U.S. Cl. 152—354 R **9 Claims**

1. A pneumatic tire for off-road, industrial or heavy load vehicles offering improved resistance to cord breaking up failure comprising; a bias laid carcass body composed of a plurality of stacks of plies including at least three superimposed rubberized organic fiber cord ply groups which are different in cord diameter, each of said ply groups including a plurality of plies, the total number of plies at least 10, the cords of substantially one-half of said plies extending in an opposite direction to the cords associated with the remainder of plies, said ply groups being composed and arranged such that the cord diameter of the outermost ply group is smaller than that of the ply group located adjacent to and inside said outermost ply group and at most equal to that of the innermost ply group and the cord diameter of the innermost carcass ply group is smaller than that of the ply group located adjacent to and outside said innermost carcass ply group, bead portions each having at least

two bead cores, further comprising an outermost stack of plies composed of at least two plies and extending along the lower surface of said bead cores and finally secured at its one end to the lower surface of said bead cores, wherein all of the boundary surfaces formed between adjacent ply groups different in cord diamter are located between inner plies of a stack of plies extending along the lower surface of said bead cores and secured at its one end to the lower surface of said bead cores.

4,340,106

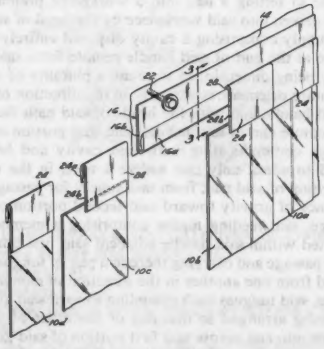
STRIP DOOR HANGING SYSTEM

William E. Van Horn, II, Pomona, Calif., assignor to Cool Curtain, Inc., Pomona, Calif.

Filed Mar. 14, 1980, Ser. No. 130,460

Int. Cl.³ A47H *1/00*

U.S. Cl. 160—332 **1 Claim**



1. A strip door assembly comprising:

a plurality of flexible, elongated relatively heavy plastic strips, and means for supporting said strips from above in a side by side overlapping arrangement to form a door or curtain which provides a barrier across a doorway but yet permits passage therethrough by simply pushing through the strips, said supporting means includes an elongated support member for attachment to a wall or other supporting surface over the doorway, said support member hav-

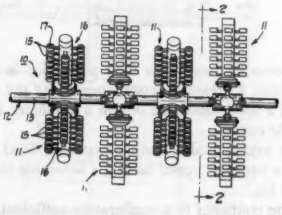
ing a first, flat elongated leg that engages the supporting surface and extends across the doorway and a second flat elongated leg that is generally parallel to the first leg, and joined at its lower end to the first leg so that they form a generally U-shaped portion with an elongated slot between the legs opening upwardly, the first leg being considerably longer in the vertical direction than that of the second leg, and a support clip having a first leg attached to the upper end of each of said strips and a second leg shorter than the first clip leg, said clip legs forming an upper U-shaped portion having a slot which opens downwardly, said U-shaped portions fitting together so that the shorter leg of the U-shaped portion on said clip releaseably fits into the slot of said U-shaped portion on said support member to thereby support the strip, and the shorter leg of the support member fits into the slot of the clip U-shaped portion, said U-shaped portions include laterally extending grooves on their inner surfaces, and the thicknesses and dimensions of the U-shaped portions are such that the clips must be pressed into engagement with the support member and said grooves help hold the clips in the engaged position, said clips and said support member being made of plastic and having an identical cross-section wherein they may be extruded in continuous lengths and cut to a desired length, the clips being inverted with respect to said support member when the U-shaped portions are engaged, the vertical depth of the slots of said U-shaped portions and the closeness of the fit being sufficient to prevent the clips from moving significantly when a force is applied to the strip in an inward or outward direction as a person passes through the strip door, the width of said clips being equal to the width of said strips minus the width of the strip that overlaps the adjacent strip, whereby the clips are in edge to edge relation in a completed door assembly.

4,340,107

CERAMIC SHELL MOLDING APPARATUS AND METHODS

Timothy R. Bauer, Euclid, Ohio, assignor to Precision Metalsmiths, Inc., Cleveland, Ohio

Filed Apr. 20, 1978, Ser. No. 898,763
Int. Cl.³ B22C *9/04, 13/08*
U.S. Cl. 164—35 **3 Claims**



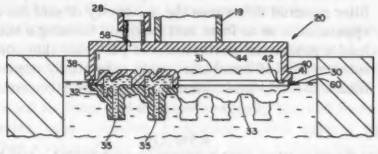
1. In the production of refractory molds by the lost pattern process, a method comprising the steps of forming a pattern set-up assembly by connecting a plurality of pattern set-ups each including sprue means and attached patterns to a main sprue forming member so that the axes of said sprue means are transverse to the longitudinal axis of said sprue forming member, surrounding the assembly with a refractory shell having a main body portion around said sprue forming member and laterally projecting arms in which said set-ups are embedded, opening up at least one end of said main body portion and the ends of said arms, removing said sprue means and said sprue forming member from said mold and melting said patterns, and thereafter closing the open ends of said arms so that molten metal can be poured into said mold.

4,340,108

METHOD OF CASTING METAL IN SAND MOLD USING REDUCED PRESSURE

George D. Chandley, and Richard L. Sharkey, both of Amherst, N.H., assignors to Hitchiner Manufacturing Co., Inc., Milford, N.H.

Continuation-in-part of Ser. No. 75,169, Sep. 12, 1979, abandoned, which is a continuation-in-part of Ser. No. 947,621, Oct. 2, 1978, abandoned. This application May 29, 1980, Ser. No. 154,230
Int. Cl.³ B22D *18/06*
U.S. Cl. 164—63 **17 Claims**



1. A method of casting metal in a rigid, self supporting, gas permeable, low temperature bonded, sand grain mold having side surfaces extending between vertically spaced upper and lower surfaces with mold cavity means spaced therebetween and a plurality of horizontally spaced gate passages positioned generally in a horizontal plane, connected at one end to said mold cavity means and having their opposite open ends exposed to the lower surface of said mold, comprising:

submerging said lower surface and said open ends of said gate passages beneath an underlying surface of molten metal while maintaining said upper surface and at least a portion of said side surfaces thereabove;

applying a reduced pressure to the upper surface of said mold to simultaneously fill said gate passages and said mold cavity means with molten metal;

solidifying said molten metal throughout the transverse dimension of at least a portion of said gate passages; and

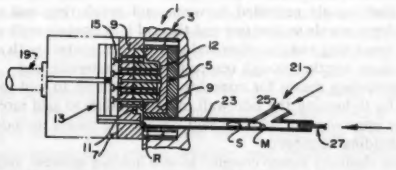
thereafter removing said mold and the submerged open ends of said gate passages from contact with said underlying surface of said molten metal before said solidified metal in said gate passage portions remelts due to contact with said underlying surface of molten metal.

4,340,109

PROCESS OF DIE CASTING WITH A PARTICULATE INERT FILLER UNIFORMLY DISPERSED THROUGH THE CASTING

Joseph T. Roddy, St. Louis, Mo., assignor to Emerson Electric Co., St. Louis, Mo.

Filed Feb. 25, 1980, Ser. No. 124,293
Int. Cl.³ B22D *19/00*
U.S. Cl. 164—97 **11 Claims**



1. A process of die casting a part formed of a metal alloy with an inert, particulate, filler material substantially uniformly distributed throughout the part thereby to decrease the amount of metal alloy required to cast the part, said process being carried out in die casting apparatus having a die cavity and

infeed means for forcing molten metal and said filler material into said die cavity under pressure, said process consisting of the steps of:

preheating said filler material to a temperature sufficient to inhibit the premature solidification of the molten metal alloy on the filler material;

placing a predetermined amount of said preheated filler material in the infeed means of said die casting apparatus;

placing a predetermined amount of said molten metal alloy in said infeed means of said die casting apparatus;

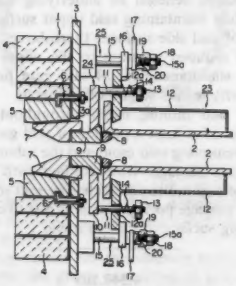
forcing said predetermined quantity of molten metal and filler material into said die thereby to substantially uniformly mix said molten metal with said particulate filler material as the molten metal together with said particulate filler material flows into the die cavity of said die casting apparatus so as to form said part; and forming a skin on at least a substantial portion of said part, said skin consisting substantially of metal alloy with substatially none of said filler material visible from the exterior of the part.

4,340,110

APPARATUS FOR CONNECTING TUNDISH AND MOLD FOR HORIZONTAL CONTINUOUS CASTING OF METAL

Akira Honda, Kamakura; Masaru Ishikawa, Fukuyama; Seishi Mizuoka, Fukuyama, and Katsunori Ono, Fukuyama, all of Japan, assignors to Nippon Kokan Kabushiki Kaisha, Tokyo, Japan

Filed Jun. 18, 1980, Ser. No. 160,595
Claims priority, application Japan, Jul. 10, 1979, 54-86497
Int. Cl.³ B22D *11/00*
U.S. Cl. 164—435 **3 Claims**



1. In an apparatus for connecting a tundish and a mold for horizontal continuous casting of a metal. a mold having an inlet opening and a tundish having a molten metal outlet on a side wall thereof, which comprises:

a break ring fitted to the inlet opening of a mold through a joint material;

a front nozzle engaged in the molten metal outlet of the side wall of a tundish;

a feed nozzle provided between said break ring and said front nozzle so that one end thereof is in contact with said break ring and the other end thereof is in contact with said front nozzle through respective joint materials; and

connecting means for connecting said tundish to said mold by tightening the side wall of said tundish to said mold;

the improvement wherein said connecting means includes:

a holding member;

first elasticity means coupled to said holding member and to said mold for elastically pushing said break ring against the inlet opening of said mold and for elastically pushing one end of said feed nozzle against said break ring via said holding member; and second elasticity means coupled to said tundish and to said mold for elastically pushing the other end of said feed nozzle against said front nozzle;

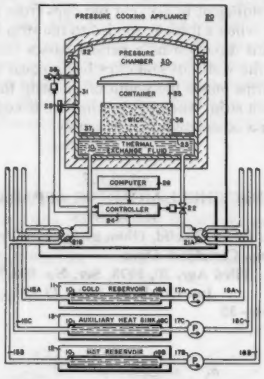
first tightening means for tightening said first elasticity means for increasing the elastic pushing force between said feed nozzle and said break ring; and second tightening means for tightening said second elasticity means for increasing the elastic pushing force between said feed nozzle and said front nozzle.

4,340,111

EVAPORATIVE COOLING OF CONTAINERS IN A PRESSURE VESSEL

Stephen F. Skala, 3839 S. Wenonah Ave., Berwyn, Ill. 60402

Continuation-in-part of Ser. No. 299,294, Oct. 4, 1972, Pat. No. 3,888,303, and a continuation-in-part of Ser. No. 569,354, Apr. 18, 1975, abandoned, and a continuation-in-part of Ser. No. 769,389, Feb. 16, 1977, abandoned, and a continuation-in-part of Ser. No. 941,123, Sep. 11, 1978, Pat. No. 4,246,955. This application Apr. 15, 1980, Ser. No. 140,618
Int. Cl.³ F25B *13/00*
U.S. Cl. 165—2 **40 Claims**



1. A process for cooling a food substance in a container which is within a pressure vessel, comprising the steps of:

enclosing a food substance within a container having a removable cover,

enclosing said container and a working fluid condensate within a pressure vessel having a securable lid and securing the lid,

heating the container to a temperature sufficient to vaporize the working fluid and to process the food substance enclosed therein,

cooling a surface within the pressure vessel to a temperature which is sufficiently low to condense vapors of the working fluid back to the working fluid condensate,

transporting the working fluid condensate onto the container for vaporization therefrom for a time sufficient to cool the container and the food substance therein to a temperature below the atmospheric boiling point of water thereby enabling opening of the container at atmospheric pressure, and

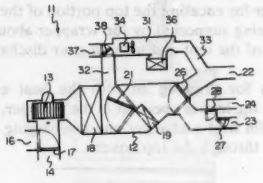
opening the securable lid of the pressure vessel, removing the container from the pressure vessel, removing the cover from the container, and removing the food substance from the container.

4,340,112

VEHICLE AIR TEMPERATURE CONTROL APPARATUS

Shinji Sutoh; Seiji Sumikawa, both of Konan, and Toshizo Hara, Higashi Matsuyama, all of Japan, assignors to Diesel Kiki Company, Ltd., Tokyo, Japan

Filed Aug. 18, 1980, Ser. No. 179,313
Claims priority, application Japan, Aug. 20, 1979, 54-105680
Int. Cl.[3] F25B *29/00;* F24F *3/14*
U.S. Cl. 165—16 8 Claims



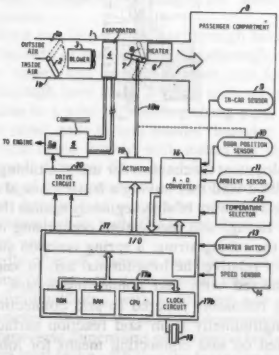
1. A temperature control apparatus comprising:
main duct means having an upper outlet, a lower outlet and control door means for selecting one of the upper outlet and the lower outlet;
heating means disposed in the main duct means;
bypass duct means having an inlet which communicates with the main duct means upstream of the heating means and an outlet which communicates with the upper air outlet; and
humidifier means disposed in the bypass duct means.

4,340,113

ELECTRIC CONTROL METHOD AND APPARATUS FOR AUTOMOBILE AIR CONDITIONING SYSTEM

Yasuhiro Iwata, Aichi; Kiyoshi Usami, Obu; Teiichi Nabeta, Okazaki; Masanori Naganoma, Kariya, and Yasuhumi Kojima, Gifu, all of Japan, assignors to Nippondenso Co., Ltd., Kariya, Japan

Filed Jul. 17, 1979, Ser. No. 58,383
Claims priority, application Japan, Jul. 18, 1978, 53-87908
Int. Cl.[3] F28F *27/00;* F25B *29/00;* B60H *3/00*
U.S. Cl. 165—25 4 Claims



1. An electric control apparatus for an automobile air conditioning system including an air duct for allowing the flow of air into a passenger compartment of the automobile, an evaporator connected with a refrigerant compressor and arranged within said air duct for cooling the air flowing therethrough, a heater arranged for warming a portion of the cooled air flowing from said evaporator into said compartment therethrough, an air-blend door arranged between said evaporator and said heater for controlling an amount of the cooled air flowing into said heater and controlling an amount of the cooled air directly flowing into said compartment, an electrically operated clutch mechanism for connecting said compressor to a prime mover of the automobile upon energization thereof and for disconnecting said compressor from said prime mover upon deenergization thereof, and an actuator arranged to control the setting of said air-blend door so as to adjust the actual temperature of air in said compartment and maintain it at a desired value, said control apparatus comprising:
first means for producing a first electric binary signal indicative of the actual temperature of air in said compartment;
second means for producing a second electric binary signal indicative of the actual temperature of air outside the automobile;
third means for producing a third electric binary signal indicative of the setting of said air-blend door;
a digital computer programmed to discriminate the setting of said air-blend door in relation to a predetermined value, the predetermined value being defined on a basis of a reference position of said air-blend door in which the cooled air from said evaporator is fully blocked from said heater, said computer producing a first control signal when a value of said third binary signal is above the predetermined value and a second control signal when a value of said third binary signal is below the predetermined value, said computer being further programmed to calculate a value indicative of optimum setting of said air-blend door maintaining the desired temperature of air in said compartment in relation to the actual temperatures of air in said compartment and outside the automobile, said computer producing a third control signal indicative of the calculated value to be applied to said actuator; and
fourth means for deenergizing said clutch mechanism in response to said first control signal from said computer and for energizing said clutch mechanism in response to said second control signal from said computer.

4,340,114

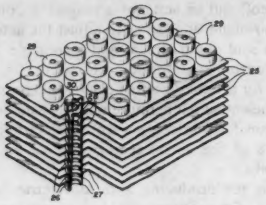
CONTROLLED PERFORMANCE HEAT EXCHANGER FOR EVAPORATIVE AND CONDENSING PROCESSES

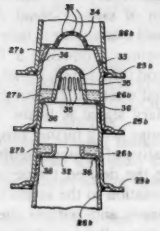
Marco Levy, Bal Harbor, Fla., assignor to Lambda Energy Products, Inc., Bal Harbor, Fla.

Filed Nov. 30, 1979, Ser. No. 98,730
Int. Cl.[3] F28B *1/00*
U.S. Cl. 165—110 4 Claims

1. A heat exchanger structure particularly adapted for liquid-to-gas heat transfer comprising a multiplicity of spaced parallel heat transfer plates in fixed relationship and being in thermal contact with an external fluid medium, a multiplicity of spaced parallel axis tapered telescopically interfitting cup-like elements formed integrally on said plates and projecting from corresponding surfaces of the plates in coaxial relationship to form fixed parallel columns through the plates at right angles to the planes occupied by the plates and across the spaces between the plates, whereby such spaces surround the columns formed by the cup-like elements, coaxial spaced nozzle elements integral with the cup-like elements and projecting therefrom coaxially in spaced relationship and in one direction to form through the centers of said columns gas flow passages which are isolated from the spaces between said plates, portions of the cup-like elements surrounding said nozzle elements forming liquid traps in the columns, and gas pressure respon-

sive liquid delivery means at one end of each column operable to deliver liquid into the columns in counter-flow relationship





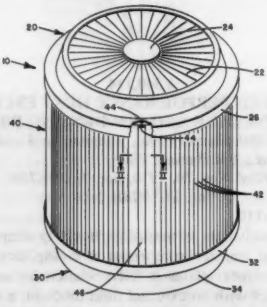
to the gas flow therethrough, whereby small amounts of the liquid can enter said traps and be held therein.

4,340,115

WRAPPER FOR A HEAT EXCHANGE UNIT

William E. Wright, E. Syracuse, and Fred V. Honnold, Jr., Fayetteville, both of N.Y., assignors to Carrier Corporation, Syracuse, N.Y.

Filed Mar. 7, 1979, Ser. No. 18,204
Int. Cl.[3] F25D *17/06*; F28F *11/00*
U.S. Cl. 165—122 **3 Claims**



1. A cylindrical heat exchange unit for use with a refrigeration circuit having refrigerant flowing therethrough which comprises:

a base pan for supporting the unit;

a slit fin heat exchanger secured in a cylindrical configuration and supported by the base pan, said heat exchanger serving to transfer heat energy between refrigerant flowing through the heat exchanger and air flowing over the heat exchanger;

a wrapper supported by the base pan for encasing the slit fin heat exchanger, said wrapper including vertically extending louver openings formed into groupings spaced about the entire circumference of the unit with solid vertical portions located between the groupings for providing structural support between other portions of the heat exchange unit, said louver openings being formed to face opposite directions on opposing sides of the unit to enable the slit fin heat exchanger to be hidden from view while allowing air flow thereto, said wrapper additionally having closure means located at the ends thereof;

means for securing the ends of the wrapper to maintain the wrapper in position;

a top cover for encasing the top portion of the unit, said top cover being supported by the wrapper about the circumference of the unit and including air discharge openings; and

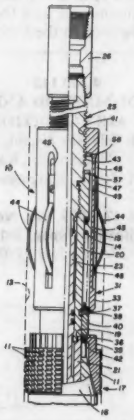
fan means for drawing air into the heat exchange unit through the louver openings in the wrapper, then through the slit fin heat exchanger and discharging said air from the unit through the top cover.

4,340,116

SLIP DEPLOYMENT MECHANISM

Stanley A. Weise, Dallas, Tex., assignor to Dresser Industries, Inc., Dallas, Tex.

Filed Sep. 15, 1980, Ser. No. 187,000
Int. Cl.[3] E21B *23/00*
U.S. Cl. 166—215 **10 Claims**

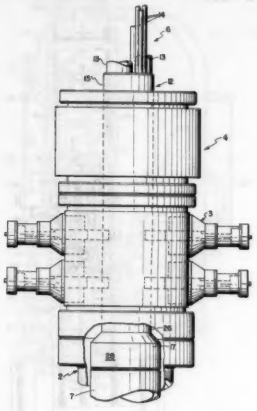


1. A slip deployment mechanism for use in a tubing string in conjunction with a well tool having a frusto-conical expander head for setting a plurality of slips segments against the interior wall of a well casing, said mechanism comprising means for connecting to the tubing string, a spring reaction surface extending laterally relative the longitudinal axis of said mechanism and connected with said connecting means, said slip segments being releasably secured to said connecting means and spaced longitudinally from said reaction surface, a slip retainer mounted on said connecting means for longitudinal movement relative to said reaction surface between a locked position in confining engagement with said slips segments and a release position freeing said slips segments to be set against the interior wall of the casing, interfitting means on said slips segments and said connecting means for coacting with said retainer to secure said slips segments in a locked position relative to said reaction surface when said retainer is in its locked position, and a longitudinally-acting spring mounted between said reaction surface and said slip segments and urging said segments toward an initially set position in engagement with both said expander head and the interior wall of the casing when said slip retainer is moved into its release position.

4,340,117
UNDERWATER WELL INSTALLATIONS AND HANDLING STRING JOINT THEREFOR

John E. Lawson, London, England, assignor to Armco Inc., Middletown, Ohio

Filed Feb. 11, 1980, Ser. No. 120,044
Int. Cl.[3] E21B 7/12
U.S. Cl. 166—341 3 Claims

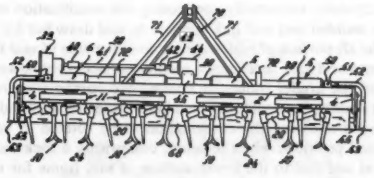


1. In an underwater well apparatus, the combination of underwater wellhead means including
a wellhead upper body having an upright bore, and blowout protector means mounted on the wellhead upper body;
handling string means capable of extending from the wellhead upper body to an operational base at the surface of the body of water and including
a lowermost joint in the form of a single solid metal body having
a cylindrical outer surface of a length adequate to extend completely through the blowout protector means,
at least one larger diameter through bore, and
a plurality of smaller diameter through bores,
the upper end of the at least one larger diameter through bore being formed with means for connection to a joint of handling string pipe,
the upper ends of said smaller diameter through bores each being formed with means for connection to a small diameter flow conduit,
a string of pipe connected to the upper end of the lowermost joint in load-supporting relation therewith and in communication with the larger diameter through passage, and
a bundle of small diameter conduits extending beside the string of pipe with each conduit connected to
and communicating with a different one of the smaller diameter through bores of the lowermost joint,
the transverse dimensions of the metal body of the lowermost joint being such that the body can be passed downwardly through the blowout protector means until the cylindrical outer surface of the body is presented for operative engagement by the blowout protector means;
a handling tool comprising
body means having an upper end and flow passage means opening upwardly therethrough,
the body means being dimensioned to pass through the blowout protector means and enter the bore of the wellhead upper body,
the upper end portion of the handling tool body means having a transverse annular outwardly opening locking groove having a frustoconical upper side wall which tapers downwardly and inwardly, and a cylindrical inner wall, and
downwardly directed means for operative engagement with a well component;
the lower end portion of the metal body of said lowermost joint having a downwardly opening socket dimensioned to receive the upper end portion of the handling tool,
the socket being defined by an annular dependent wall having a cylindrical inner surface,
the annular dependent wall being formed with an inwardly opening transverse annular locking groove having
a frustoconical upper side wall which tapers downwardly and inwardly at the same angle as does the upper side wall of said outwardly opening groove of the handling tool body,
a frustoconical lower side wall parallel to said upper side wall of the inwardly opening groove,
and
an outer wall; and
load-bearing coupling means interconnecting the upper end of the handling tool and the lower end of the lowermost joint of the handling string and comprising
a plurality of arcuate segments arranged in an annular series and slidably engaged between the upper and lower side walls of the inwardly opening groove in the annular dependent wall and projecting inwardly into said outwardly opening groove of the handling tool, the inner portions of said segments having upper frustoconical faces slidably engaged with the upper side wall of said outwardly opening groove, and
a plurality of segment adjusting screws operatively engaged in threaded bores which extend downwardly and inwardly through said annular dependent wall.

4,340,118
SOIL CULTIVATING IMPLEMENTS

Cornelis van der Lely, 7, Brüschenrain, Zug, Switzerland

Division of Ser. No. 707,346, Jul. 21, 1976, Pat. No. 4,109,731.
This application Jun. 19, 1978, Ser. No. 916,523
Claims priority, application Netherlands, Jul. 24, 1975, 7508821
Int. Cl.[3] A01B 33/06
U.S. Cl. 172—49.5 1 Claim



1. A soil cultivating implement comprising a frame and a plurality of soil working members arranged in a row and rotatably mounted along the length of a transverse, elongated portion of said frame, said members being in driven arrangement with each other and rotatable about upwardly extending axes defined by respective shafts and driving means connected to rotate said members, said driving means including an upper rotary shaft and a lower driving shaft that extend horizontally transverse to the direction of implement travel, said rotary shaft having an outer lateral end that engages said driving shaft through a change speed gear arrangement, said driving shaft including a coaxial shaft segment that drives an outer one of said members, said driving shaft comprising a common driving shaft for the remaining soil working members that extends in transverse alignment with said row, as seen in plan, and adjacent the respective upwardly extending shafts of said members, said speed gear arrangement comprising interchangeable gears

arranged one above the other in a gear box secured adjacent one lateral side of the frame portion, said rotary driving shafts being supported above the length of said elongated frame portion.

4,340,119

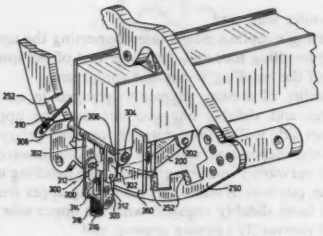
MOTOR GRADER WITH BAR LINKAGE BLADE POSITIONING APPARATUS

Jack G. MacDonald, Goderich, Canada, assignor to Champion Road Machinery Limited, Goderich, Canada

Continuation-in-part of Ser. No. 912,559, May 6, 1978, abandoned. This application Apr. 11, 1980, Ser. No. 139,249

Int. Cl.[2] E02F *3/76*

U.S. Cl. 172—789 **8 Claims**



1. In a motor grader having a support frame, a draw bar swivelled thereto adjacent its forward end and a scraper blade rotatably supported from said draw bar, a beam member transversing and centered on the top of said support frame and centrally pivoted to rotate about an axis extending in the fore and aft direction of the grader and secured to the upper surface of said support frame to adjusted positions, a link member removably fastened to said beam at points spaced at each side of said support frame such that said link and said beam encircle said support frame, the combination of said beam and said link member universally supporting outwardly to each side of said support frame a pair of hydraulically actuated lift cylinders, each cylinder extending downwardly to and universally connected to said draw bar, a double acting hydraulically actuated shift cylinder universally connecting the combination of said beam member and said link member to said draw bar for moving the aft portion of said draw bar to either side of said frame, an improved lock mechanism secured adjacent the lower surface of the grader frame for holding the combination of said beam member and said link member in selected adjusted positions and allowing the combination to be rotated to various adjusted positions when released, comprising a lock bar pivoted at one end to the lower surface of said frame for movement from a lock position to a clear position, said link member including a plurality of notches for receiving said lock bar and securing said beam at various adjusted positions, means for moving and maintaining said lock bar in the desired position and further including guide support means for transmitting forces applied to said bar lock by said link member to the grader frame, wherein said means for moving and maintaining said bar lock includes a bar linkage comprising a first link pivotally connected to said frame and a second link pivotally connected to said first link, and the opposite end of said second link secured to the free end of said bar lock, said linkage further including compensation means for allowing said linkage to pass through its fully extended position to an over-center position while still providing abutting contact of said bar lock in one of said notches in the over-center position and further including stop means for limiting the movement of said links after they have been passed through the over-center position.

4,340,120

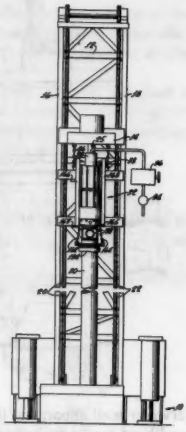
ANNULAR CASING HAMMER

Ernest D. Hauk, Yucca Valley, and Jesse C. Kirkpatrick, Mission Viejo, both of Calif., assignors to Hawk Industries, Inc., Signal Hill, Calif.

Continuation-in-part of Ser. No. 888,312, Mar. 20, 1978, Pat. No. 4,232,752. This application Jun. 23, 1980, Ser. No. 161,660

Int. Cl.[3] B23B *45/16;* **B25D** *9/00, 11/00, 13/00*

U.S. Cl. 173—131 **14 Claims**



1. A pipe hammer comprising

an end cap,

an outer sleeve fixed to said end cap,

an inner sleeve having a rear end rigidly fixed to said end cap, said inner sleeve being concentric with and in radially spaced relation to said outer sleeve to define an annular chamber closed at one end by said end cap, the front end of said inner sleeve being free of connection to said end cap,

an annular piston slidably mounted in said chamber with a radial piston clearance between said piston and said chamber,

an annular anvil slidably mounted in and sealing the other end of said chamber and having radial anvil clearance between said anvil and said chamber that is less than said piston clearance, said anvil clearance being sufficiently small to cause said anvil to radially position said sleeves relative to each other at said other end of the chamber to maintain concentricity of said sleeves and to stabilize the free front end of said inner sleeve,

means for reciprocating said piston within said chamber to cause the piston to repetitively strike said anvil, and

means for receiving blows from said anvil and transmitting such blows to a pipe to be driven.

4,340,121

PNEUMATIC ROCK DRILLS

Edward A. Bailey, Newport, and Louis H. LeBlanc, Jr., Claremont, both of N.H., assignors to Joy Manufacturing Company, Pittsburgh, Pa.

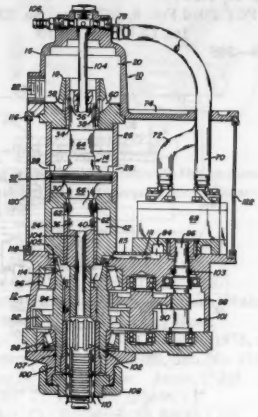
Filed Jan. 9, 1980, Ser. No. 110,587

Int. Cl.[3] B25D *9/18*

U.S. Cl. 173—134 **4 Claims**

1. A pneumatic motor comprising a cylinder having exhaust ports therein, reduced-diameter cylinders coaxial with said first-mentioned cylinder at opposite ends thereof, receivers for fluid under pressure adjacent said reduced-diameter cylinders, inlet ports in said reduced-diameter cylinders for connecting the interior of each cylinder to its respective receiver, a hammer piston having an enlarged piston portion reciprocable

within said first-mentioned cylinder, reduced-diameter piston portions extending axially on opposite sides of said enlarged piston portion and reciprocable within said reduced-diameter cylinders, means on said reduced-diameter piston portions for alternately connecting the respective receivers through said inlet ports to one and then the other side of said first-mentioned



cylinder, conduit means external to said cylinders interconnecting said receivers and said conduit means comprises at least one tube interconnecting the respective receivers at a point radially offset with respect to said first-mentioned cylinder, and supply port means in communication with one said receiver for supplying motive fluid to said cylinder therethrough.

4,340,122

MOUNTED DRILLING APPARATUS

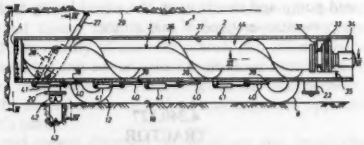
Heinrich Manten, Salzgitter, Fed. Rep. of Germany, assignor to Salzgitter Maschinen und Anlagen Aktiengesellschaft, Salzgitter, Fed. Rep. of Germany

Filed Jul. 24, 1980, Ser. No. 172,846

Claims priority, application Fed. Rep. of Germany, Aug. 1, 1979, 2931208

Int. Cl.³ E21C *1/10, 11/00, 27/20, 31/02*

U.S. Cl. 175—78 **17 Claims**



1. A drilling apparatus comprising a mount formed with a longitudinal passageway; a feeding mechanism at least partially arranged in said passageway; a rotary drive including means for holding at least one drill rod, said rotary drive being at least partially arranged in said passageway and coupled to said feeding mechanism for being longitudinally moved in said passageway; means provided on said mount for guiding said rotary drive in a fixed angular position during its longitudinal movement in said passageway and for intercepting the reaction moments generated in the course of the drilling operation, and wherein said mount is constituted by a cylindrical shell delimiting a passageway having an outward opening which extends in longitudinal direction over a major part of the shell.

4,340,123

APPARATUS FOR COOLING AN ENGINE

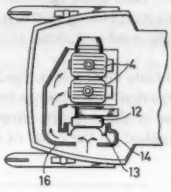
Tetsuzo Fujikawa, Kobe, Japan, assignor to Kawasaki Jukogyo Kabushiki Kaisha, Kobe, Japan

Filed Jun. 11, 1980, Ser. No. 158,440

Claims priority, application Japan, Jun. 13, 1979, 54-74899

Int. Cl.³ F01P *7/02*

U.S. Cl. 180—54 A **2 Claims**



1. Variable air supply apparatus for cooling an engine having a belt speed converter connected to an output shaft of the engine, the converter including a fixed sheave secured to the output shaft and a movable sheave axially movable relative to said fixed sheave and rotatable therewith, the sheaves forming a space therebetween that receives a belt, said apparatus comprising a fan adapted to be attached to said movable sheave and to produce positive air flow when said engine rotates, a casing around said fan and having an air inlet opening, and an air outlet duct communicating with said casing and mounted to convey air to cool the engine, said fan being movable within said casing to thereby produce varying amounts of air flow upon movement of said movable sheave, said casing having a recess formed therewithin displaced from said duct, said fan being retracted into said recess as said movable sheave moves toward said fixed sheave so that said fan produces a relatively small amount of air flow.

4,340,124

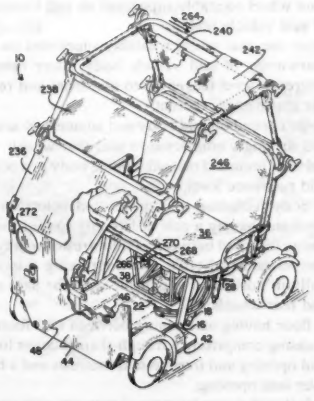
FOLDABLE MINICAR

Lloyd H. Leonard, 4414 Woodman Ave., Apt. 304, Sherman Oaks, Calif. 91413

Filed Mar. 12, 1980, Ser. No. 129,781

Int. Cl.³ B62D *39/00*

U.S. Cl. 180—208 **16 Claims**



1. A foldable vehicle having a motor, a seat, a pair of spaced front wheels and a pair of spaced rear wheels,

said foldable vehicle comprising:

a first and a second frame, said front wheels being attached

to said first frame and said rear wheels being attached to said second frame,

said motor and said seat being supported by said second frame,

said first frame being designed and arranged to support the feet of a person sitting in said seat, and,

articulated linkage connecting said first and second frames and being capable of rotating said first and second frames with respect to each other between operating and folded positions while maintaining said first and second frames in substantially the same horizontal angular relationship with each other,

wherein said foldable vehicle is designed and arranged to be folded and unfolded by applying a horizontal force on one of said frames in the opposite direction as a horizontal force being applied on the other of said frames.

4,340,125

STABILIZED MOTOR VEHICLE

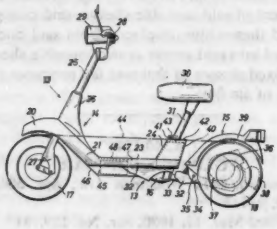
Masaki Watanabe, Urawa; Hiroshi Shimoyama, Fujimi, and Keiji Suzuki, Tokyo, all of Japan, assignors to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Mar. 27, 1980, Ser. No. 134,570

Claims priority, application Japan, Apr. 5, 1979, 54-41344; Apr. 6, 1979, 54-45384[U]

Int. Cl.³ B62D *61/08;* **B62K** *5/02*

U.S. Cl. 180—215 **7 Claims**



7. A motor vehicle comprising:

a vehicle body;

a front wheel rotatably supported on and located forwardly of said vehicle body;

at least one rear wheel rotatably supported on and located rearwardly of said vehicle body, there being defined a reference level tangential to said front and rear wheels at the upper edges thereof;

a motor carried on said body and adjacent to said rear wheel and drivingly connected to said rear wheel;

a fuel tank mounted on said vehicle body at a position below said reference level;

said body including a floor located below said reference level and having a pair of laterally spaced footrests and a casing disposed between said footrests for accommodating therein said fuel tank, said floor being disposed substantially in horizontal alignment with the axes of said front and rear wheels;

said floor having an opening between said footrests;

said casing comprising a trough-shaped cover located below said opening and fixed to said footrests and a hood located over said opening;

said fuel tank being interposed between said cover and said hood through said opening;

said floor having a flange jointly defining said opening and extending upwardly into said hood; and

said flange jointly supporting said fuel tank.

4,340,126

OVERSPEED CONTROL FOR A VEHICLE DRIVE SYSTEM

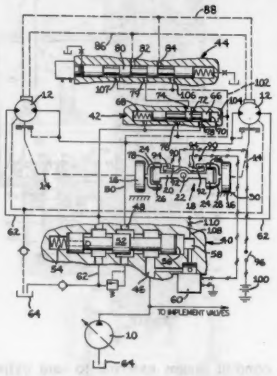
Donald J. Larson, Joliet, Ill., assignor to Caterpillar Tractor Co., Peoria, Ill.

PCT No. PCT/US79/00068, § 371 Date Feb. 8, 1979, § 102(e) Date Feb. 8, 1979, PCT Pub. No. WO80/01668, PCT Pub. Date Aug. 21, 1980

PCT Filed Feb. 8, 1979, Ser. No. 73,410

Int. Cl.³ B60K *17/10*

U.S. Cl. 180—305 **10 Claims**



1. In a vehicle drive system including a wheel (**16**) to be driven, a suspension (**18**) having multiple relatively movable parts (**20,24,26,28**) and mounting the wheel for rotation and translation on a vehicle frame, a hydraulic rotary output motor (**12**) connected to the wheel for driving the wheel, a hydraulic pump (**10**) for providing hydraulic fluid under pressure to the motor, a conduit (**50,50L, 50R**) interconnecting the pump and the motor, and a flow control valve (**40,40L,40R**) in the conduit for controlling the flow of hydraulic fluid between the pump and motor, the improvement comprising:

sensing means (**90,92,94**) associated with two of the relatively movable parts of the suspension for sensing relative movement therebetween indicative of the wheel losing contact with the underlying terrain on which it is adapted to ride; and

valve operating means (**54,60,60L,60R**) responsive to said sensing means for substantially immediately closing said valve and thereby halt the flow of hydraulic fluid between said pump and motor upon the wheel losing said contact to prevent overspeed of said motor.

4,340,127

TRACTOR

Peter O. Broberg, Hamngatan 4, S-261 31 Landskrona, Sweden

PCT No. PCT/SE78/00036, § 371 Date Apr. 30, 1979, § 102(e) Date Apr. 30, 1979, PCT Pub. No. WO79/00118, PCT Pub. Date Mar. 8, 1979

PCT Filed Aug. 30, 1978, Ser. No. 47,651

Int. Cl.³ B60K *25/00*

U.S. Cl. 180—327 **15 Claims**

1. A tractor comprising

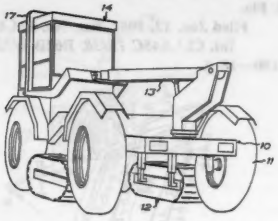
a subframe provided with wheels for ground contact,

a drive unit on said subframe for providing power to said wheels to propel said tractor,

a telescoping arm having one end mounted on said subframe,

a driver's cab having controls for controlling the tractor removably mountable on said subframe, and alternatively

removably mountable on the other end of said telescoping arm,



whereby said cab can alternatively be mounted on said subframe or said arm for carrying out alternative functions of said tractor.

4,340,128

OFFSET TYPE TRACTOR

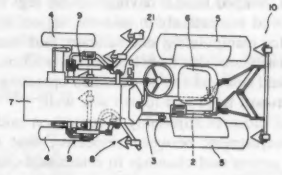
Yasunobu Yamaue, Izumi, and Tetsuo Ishioka, Wakayama, both of Japan, assignors to Kubota, Ltd., Japan

Continuation of Ser. No. 891,764, Mar. 30, 1978, abandoned. This application May 16, 1980, Ser. No. 151,097

Claims priority, application Japan, Jul. 15, 1977, 52/94626[U]; Oct. 27, 1977, 52/145466[U]

Int. Cl.[3] **B60K** *17/00;* **B60D** *1/10*

U.S. Cl. 180—900 **7 Claims**



1. An offset type tractor comprising a pair of left and right front wheels, a pair of left and right rear wheels, and front wheels and the rear wheels having a common longitudinal center line, a main frame unit offset to one lateral side of said longitudinal center line and having a prime mover assembly on a forward portion thereof and a transmission on a rearward portion thereof, an operator's seat mounted on a side of the main frame unit adjacent said longitudinal center line, a first working implement mounted between the front and rear wheels and offset relative to the main frame unit toward the longitudinal center line, and a second working implement mounted rearwardly of the rear wheels and offset relative to the main frame unit toward the longitudinal center line, front hydraulic means disposed on a longitudinal intermediate portion of the main frame unit and on a side thereof opposite the operator's seat,

front rod means disposed on an upper and longitudinally intermediate portion of the main frame unit to extend transversely through left and right sides thereof and adapted to be rotatable by the action of said front hydraulic means,

lift arm means connected to left and right ends of said front rod means for raising and lowering said first working implement,

rear hydraulic means mounted in a cylinder housing disposed over said transmission,

rear rod means disposed on an upper rearward portion of the main frame unit to extend transversely through the left and right sides thereof and adapted to be rotatable by the action of said rear hydraulic means,

laterally inclined lift arm means connected to left and right ends of said rear rod means for raising and lowering said second working implement, each of said lift arm means extending rearwardly and towards said center line, and

raising and lowering operating means operable independently of said front and rear hydraulic means whereby said first and second working implements are separately operable.

4,340,129

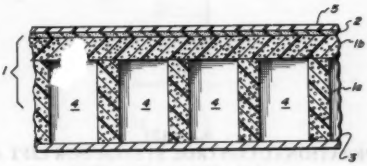
ACOUSTICAL LAMINATE CONSTRUCTION AND ATTENUATED SYSTEMS COMPRISING SAME

Edward F. Salyers, Appollo, Pa., assignor to Cabot Corporation, Kokomo, Ind.

Filed May 1, 1980, Ser. No. 145,422

Int. Cl.[3] **G10K** *11/16;* **B32B** *3/24, 3/26*

U.S. Cl. 181—200 **11 Claims**



1. An acoustic laminate construction comprising:

(A) a first lamina having a thickness of at least 0.2 inch and being composed of an energy-absorbing flexible polymeric foam composition, said lamina having a loss factor, η, of at least 0.4 at 25° C. and 100 Hz excitation frequency:

(B) a second lamina composed of a flexible polymeric weighted composition, said second lamina having a surface density of at least about 0.5 lb/ft^2, said second lamina being of substantially less thickness than said first lamina;

the natural resonant frequency of the overall laminate construction being no greater than about 1000 Hz.

4,340,130

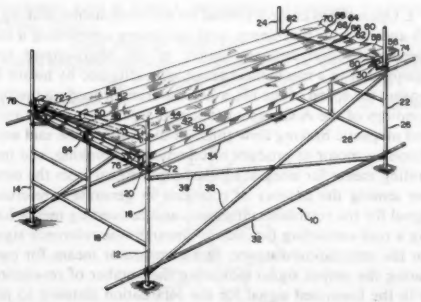
SCAFFOLD FRAME HEADER

George E. Payne, Mission Viejo, and Richard G. Meehan, Laguna Niguel, both of Calif., assignors to Kwikform America, Inc., Fountain Valley, Calif.

Filed Jul. 24, 1980, Ser. No. 171,957

Int. Cl.[3] **E04G** *1/14, 1/15*

U.S. Cl. 182—179 **27 Claims**



1. An assembly for converting a conventional scaffold mounting overlapping wood planks to a scaffold supporting plural hollow folded metal planks so that their adjacent juxtaposed ends are in the same plane to provide an even walkway surface comprising:

plank support means for providing an elongated shelf-like member for supporting the ends of said folded metal planks;

means for releasably mounting said plank support means to a conventional scaffold;

a plank hold-device shoulder, attached to said shelf-like member restraining one of said planks from vertical movement and transverse horizontal movement; and

a plank retainer lug vertically mounted on said shelf-like member for engaging a flange of said one plank for preventing longitudinal horizontal movement of said one plank relative to said plank support means so that said conventional scaffold is prevented from pulling away from said hollow folded metal planks mounted on said plank support means, said lug preventing upward vertical movement of said one plank.

4,340,131

OPERATIONAL CONTROL SYSTEM FOR LIFT AND ELEVATOR MACHINERY

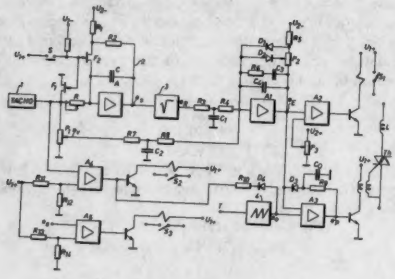
Arvid Eriksson, Stockholm, Sweden, assignor to Elevator GmbH, Baar, Switzerland

Filed Dec. 19, 1980, Ser. No. 218,080

Claims priority, application Sweden, Dec. 28, 1979, 7910738

Int. Cl.³ B66B *1/32;* H02P *3/26*

U.S. Cl. 187—29 R **2 Claims**



1. Operational control system for electrodynamic braking of lift and elevator machinery, said machinery comprising a one-speed A.C. asynchronous motor of the short-circuit type equipped with a mechanical brake, characterized by means for sensing the speed of the lift, a D.C. source for feeding the field windings of the A.C. asynchronous motor to produce a rectified magnetic braking flow through the rotor of the said asynchronous motor to produce electrodynamic braking, and integrating means for integrating the output signal from the member sensing the number of rotations to generate a reference signal for the retardation distance, and converting means having a root-extracting function to linearize the reference signal for the retardation distance, first comparator means for comparing the output signal indicating the number of revolutions with the linearized signal for the retardation distance to produce a fault signal for controlling an electric control signal for said D.C. direct current source, second comparator means for comparing the fault signal with a reference level corresponding to the available maximum electrodynamic braking to produce a signal for activating existing mechanical brake in said machinery.

4,340,132

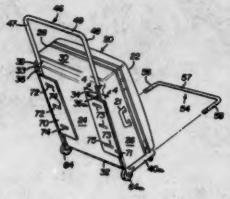
SUITCASE AND CART ASSEMBLY

Juan F. Cerna, Miami, Fla., assignor to J.F.C. Investments, Inc., Miami, Fla.

Filed Jan. 12, 1981, Ser. No. 224,490

Int. Cl.³ A45C *13/38;* B62B *1/12*

U.S. Cl. 190—18 A **3 Claims**



1. In combination:

a suitcase having a top wall, a bottom wall and two pairs of opposite side walls, said bottom wall presenting a pair of open channels which extend in close proximity to and parallel to one pair of opposite side walls;

a pair of substantially L-shaped tubular frame members, each having two legs adjoining each other at a corner, each of said frame members having one of its legs snugly seated in a corresponding channel in said bottom wall and slidably removable therefrom; the other leg of each of said frame members extending parallel to said one pair of opposite side walls adjacent a third of said side walls;

a generally U-shaped handle having parallel legs telescopically received respectively in said one legs of said frame members for manipulating said suitcase; said handle having a cross arm movable from a retracted position near the fourth of said side walls to an extended operating position spaced outward from said fourth side wall;

and a pair of closures adjustably mounted on said bottom wall for adjustment between respective first positions extending across said channels to retain said one legs of the frame members therein and respective second positions uncovering said channels to permit removal of said one legs of said frame members therefrom;

said closures comprising flat plates slidably mounted on the outside of said bottom wall between said channels, and further comprising means acting between said bottom wall and said plates for guiding said plates laterally of said channels when the plates are adjusted between said first and second positions thereof.

4,340,133

DEVICE FOR SENSING THE ENGAGEMENT POSITION OF A CLUTCH

Arthur Biersch, Markdorf, Fed. Rep. of Germany, assignor to Zahnradfabrik Friedrichshafen AG, Fed. Rep. of Germany

Filed May 23, 1980, Ser. No. 152,814

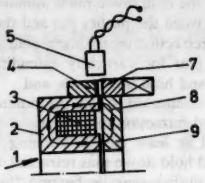
Claims priority, application Fed. Rep. of Germany, May 23, 1979, 2921032

Int. Cl.³ F16D *27/02, 27/12, 43/20*

U.S. Cl. 192—30 W **14 Claims**

1. A device for sensing the engagement position of a clutch adapted to be engaged through the axial movement of a movable section of the clutch with an engagable section of the clutch, comprising a magnetic circuit adapted to be responsive to movement of the movable clutch section relative to the engagable clutch section, sensor means mounted in a predetermined position relative to the clutch sections and adapted to

respond to a leakage magnetic flux from the magnetic circuit, thereby to provide a sensing of the position of the movable



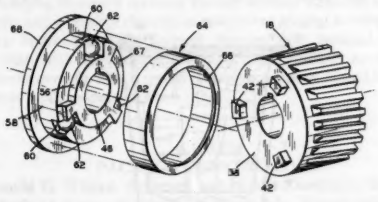
clutch section and sensing of the engagement position of the clutch.

4,340,134

BALL SHIFT MECHANISM

Garry K. Reiss, Mt. Vernon, Ohio, assignor to The J. B. Foote Foundry Co., Fredericktown, Ohio

Filed Mar. 10, 1980, Ser. No. 128,451
Int. Cl.³ F16D *11/10*
U.S. Cl. 192—67 R **2 Claims**



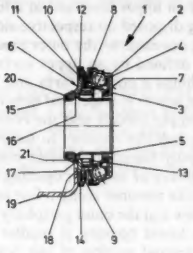
1. Shift mechanism for connecting a rotatable member with a shaft, to cause said member to rotate with said shaft, said mechanism comprising a clutch collar mounted on the shaft for rotatable movement therewith and for lineal movement with respect thereto, said clutch collar having at least one lug extending toward the rotatable member and the rotatable member having at least one lug extending toward said clutch collar, said clutch collar engaging the rotatable member when said collar is in an engaged position, and spaced from the rotatable member when said clutch collar is in a disengaged position, a ball, said lugs having straight surfaces extending substantially parallel to the axis of said shaft, with said straight surfaces contacting said ball at points on a line extending through the center of said ball when said clutch collar is in the engaged position, one of said clutch collar and said rotatable member having a recess for locating said ball adjacent the respective lug, with the other lug contacting said ball when said collar is in the engaged position and spaced from said ball when said collar is in the disengaged position, said one of said clutch collar and said rotatable member having said recess also forming a long shallow groove adjacent said recess to receive the other lug, said ball extending out of said recess above said groove by a distance exceeding the radius of said ball.

4,340,135

CLUTCH RELEASE DEVICE

Armin Olschewski, Schweinfurt; Manfred Brandenstein, Eussenheim; Lothar Walter, and Heinrich Kunkel, both of Schweinfurt, all of Fed. Rep. of Germany, assignors to SKF Kugellagerfabriken GmbH, Schweinfurt, Fed. Rep. of Germany

Filed Mar. 3, 1980, Ser. No. 126,437
Claims priority, application Fed. Rep. of Germany, Apr. 7, 1979, 7910203[U]
Int. Cl.³ F16D *23/14*
U.S. Cl. 192—98 **7 Claims**



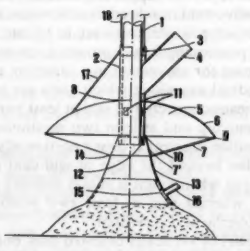
1. In a clutch release device including a pressure plate, a sliding sleeve extending into and connected to the pressure plate, and a clutch thrust bearing having a stationary bearing ring axially abutting the pressure plate, the stationary bearing ring being secured in the axial direction and against turning with respect to the pressure plate, and a clutch lever affixed to the pressure plate by means of corresponding interconnecting elements; the improvement wherein the sliding sleeve has a flange on the side thereof away from the stationary bearing ring, wherein a holding ring is provided between the flange of the sliding sleeve and the pressure plate, the holding ring having an elastic outer rim, the clutch lever having an aperture with radially opposite inwardly directed projections, the outer diameter of the holding ring being greater than the distance between the surfaces of the projections of the clutch lever that are directed toward one another, the clutch lever being held against said pressure plate by said holding ring.

4,340,136

APPARATUS FOR THE DUST-FREE HANDLING OF POWDER SUBSTANCES

Jean-Pascal Hanrot, Aix-en-Provence, and Jacky Volpeliere, Gardanne, both of France, assignors to Aluminum Pechiney, Lyons, France

Filed May 19, 1980, Ser. No. 151,380
Claims priority, application France, May 18, 1979, 79 13543
Int. Cl.³ B65G *69/18, 11/20*
U.S. Cl. 193—15 **13 Claims**



1. Apparatus for handling powder substance formed by a

central pipe for downward feed of the substance, an outer concentric pipe for the upward movement of dust, an axial corolla-like member which is open at its two ends and which flares outwardly downwardly and which is disposed below the two concentric pipes, and a suction means communicating with the outer concentric pipe whereby said pipe can be put under vacuum, comprising:

means gripping the upper portion of the outer concentric pipe onto the inner pipe,

the outer concentric pipe comprises communication openings provided with filter means,

a closed bell-like member is placed around the outer pipe which passes therethrough and to which it is connected sealingly at an upper level and at a lower level, said two levels being disposed on respective sides of the filter communicating openings of the outer pipe while said bell-like member is defined by an upper surface whose outer periphery delimits a constant area and by a lower deformable surface which is suspended between the outer periphery of the upper surface and the connection at the lower level of the bell-like member to the outer pipe,

said downwardly flared corolla-like member being coupled by the periphery of its upper opening to the lower surface of the bell-like member along a line intermediate between the outer pipe and the outer periphery of the upper surface and whose lower opening is smaller in section than the largest horizontal section of the bell-like member, said bell-like member being put under vacuum by the suction means, and

a means for vertically positioning of the whole of the apparatus.

4,340,137

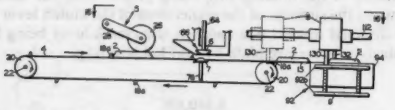
CANT MOVEMENT AND ALIGNING MECHANISM

Theodore C. Foster, Eugene, Oreg., assignor to Opcon, Inc., Everett, Wash.

Continuation of Ser. No. 47,332, Jun. 11, 1979, abandoned, which is a division of Ser. No. 890,050, Mar. 27, 1978, Pat. No. 4,205,568. This application Dec. 11, 1980, Ser. No. 215,239

Int. Cl.³ B27B *31/00*; B65G *47/22*

U.S. Cl. 198—457 **16 Claims**



1. A cant movement and aligning mechanism for transversely moving a cant from a delivery position to a position on a conveyor such that the cant is longitudinally aligned in a predetermined manner with cutters adapted to longitudinally cut the cant, said cant movement and aligning mechanism comprising:

overhead support means, overlying said delivery position and said conveyor for supporting at least two positioning heads for movement in a direction transverse to said longitudinal axis along which cants are to be cut;

at least two positioning heads mounted on said overhead support means for movement in a direction transverse to the longitudinal axis along which cants are to be cut;

positioning means connected to said at least two positioning heads for moving said at least two positioning heads between a position whereat at least a portion of said positioning heads lies beyond the edge of said cant remote from said conveyor when a cant is in said delivery position and a position whereat said at least two positioning heads generally overlie said conveyor;

at least two pairs of vertically oriented pins, one pin of each said pairs forming a pusher pin and the other pin of each of said pairs forming a hold down pin, one of said pairs being mounted in each of said positioning heads, such that the pusher pin is mounted in the portion of the positioning head movable to a position beyond the edge of a cant remote from said conveyor when a cant is in said delivery position and the hold down pin is mounted in the positioning head between the pusher pin and the conveyor;

extension and retraction means connected to said pusher and hold down pins for vertically extending and retracting said pusher and hold down pins; and,

control means connected to said positioning means and said extension and retraction means for:

moving said at least two positioning heads, with said pusher and hold down pins retracted, to a position such that said pusher pins lie beyond the edge of a cant remote from said conveyor when a cant is in said delivery position;

extending said pusher and hold down pins such that the lower end of said pusher pins lie below the upper surface of a cant at said delivery position and the lower end of said hold down pins lie atop the upper surface of a cant at said delivery position; and,

moving said at least two positioning heads toward said conveyor so that said pusher pins impinge on the edge of a cant remote from said conveyor and move said cant towards said conveyor until said cant reaches a predetermined position above said conveyor, said predetermined position being such that said cant is longitudinally aligned in a predetermined manner with said cutters.

4,340,138

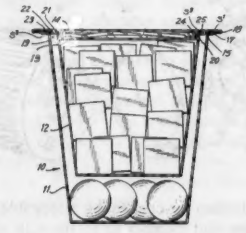
MULTIPLE COMPARTMENT MULTIPLE SEAL CONTAINER

Daniel Bernhardt, P.O. Box 681, Rutland, Vt. 05701

Continuation-in-part of Ser. No. 175,367, Aug. 5, 1980. This application Sep. 15, 1980, Ser. No. 187,464

Int. Cl.³ B65D *21/00, 85/62*

U.S. Cl. 206—216 **2 Claims**



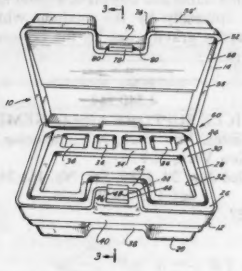
1. A multiple compartment package for foods or the like comprising a first container having a bottom, side walls defining a mouth, and a planar flange extending laterally outwardly beyond said mouth, a continuous recess interposed between said flange and said mouth, a second, seperable container mounted in said first container, said second container having a mouth and a laterally directed perimetal flange seated in said recess of said first container and defining a closure therefor, a lid disposed in sealing position of said second container and including a skirt portion disposed within said second container and forming a frictional interfit with said second container adjacent said mouth and a perimetal shoulder portion overlying the mouth of said second container and in substantial coplanar alignment with said flange of said first container, a membrane disposed in covering relation of said first container, and a continuous seal connection defined between said film and the upper surface of said flange of said first container, said membrane functioning to maintain said second container and said lid in closing relation of the mouth of said first container and the mouth of said second container, respectively.

4,340,139

BLOW MOLDED CARRYING CASE

Donald G. Wilcox, Seymour, and Nobile Zambrano, Branford, both of Conn., assignors to Show-Pak, Incorporated, New Haven, Conn.

Filed Feb. 19, 1981, Ser. No. 236,049
Int. Cl.[3] B65D *51/04, 25/18, 71/00*
U.S. Cl. 206—349 10 Claims



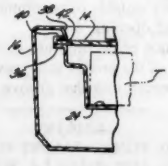
1. A carrying case comprising a base and a cover for the base, said base being formed of one-piece blow molded construction including a bottom wall, peripheral side walls extending therefrom and a top wall, said top wall extending along one of said side walls to define the rear wall of the case and having an opening formed thereon along the opposite wall whereby access is provided to the interior of said base below the top wall, said cover being blow molded and having side walls generally complementary in plan to the side walls of said base, said cover and base having first cooperating means defining an interrupted hinge for pivotally connecting said cover to said base and second cooperating means for latching said cover to the base in a closed position; said base having an upwardly extending inwardly inclined surface formed adjacent said side walls and inwardly therefrom said cover having a complementary inclined surface formed therein, said inclined surface mating with each other in said closed position to form an interference fit which resists lateral movement of said base and cover with respect to each other.

4,340,140

PACKAGE CONSTRUCTION

Donald G. Wilcox, Seymour, and Nobile Zambrano, Branford, both of Conn., assignors to Show-Pak, Incorporated, New Haven, Conn.

Filed Aug. 18, 1980, Ser. No. 178,754
Int. Cl.[3] B65D *1/24, 43/12*
U.S. Cl. 206—373 12 Claims



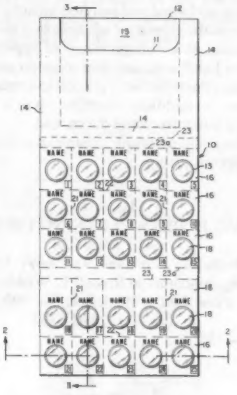
1. A package comprising a base having a plurality of sides defining an open top, said sides each having a top edge, with the top edge of one of said sides being at a lower level than the top edges of the remainder of said sides, said sides each including a support shoulder for a package cover located on the interior of the package below the top edge of said one side and means associated with and spaced from at least some of said shoulders for resisting vertical removal of a cover supported on said shoulders; and a cover slidable across the top edge of said one side along the shoulders of at least some of the other sides, said cover having a periphery which is generally complementary to the periphery of said opened top whereby when the cover is slid into position over said shoulders it rests on the shoulders below the level of the top edge of said one sidewall which resists withdrawal of the cover from the package; said base having an article support panel formed therein extending between said sides below the level of said shoulders; and panels having recesses of predetermined shape formed therein to support articles of predetermined shape such that the upper surfaces of the supported articles all lie in substantially the same plane as said shoulders for retention in said recesses by said cover.

4,340,141

UNIT DOSE DRUG CONTROL PACKAGE

Arthur Fischer, Stamford, Conn., assignor to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Filed Feb. 23, 1981, Ser. No. 237,458
Int. Cl.[3] B65D *21/02, 75/36, 83/04*
U.S. Cl. 206—531 2 Claims



1. A drug control package laminate comprising, in combination:

(1) a pair of semi-rigid backing sheets, each sheet having a plurality of aligned holes therein at one end, said holes in said backing sheets superimposed, and said sheets secured at the edges at the end opposite the holes to form a pocket therebetween;

(2) a continuous sheet of flexible, clear film having a plurality of hollow blisters therein with a planar section between the blisters, said blisters superimposed with the holes in said backing sheets and extended through the holes in one of said backing sheets, the planar section secured to the underside of the first backing sheet;

(3) a continuous sheet of rupturable material covering the blister hollows so as to close the blisters, said rupturable sheet placed between and secured to the underside of said blister sheet and to the underside of said second backing sheet;

(4) a unit drug dose in each closed blister; said laminate being scored along predetermined lines:

(a) to form a plurality of individually removable unit dose packages corresponding to each of the closed blisters, each unit dose package being identified with product name and a sequential dose number; and

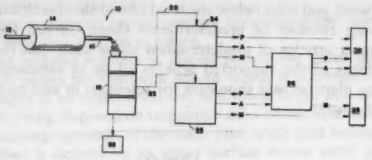
(b) to be foldable transversely into a compact package wherein the blisters interlock to form a single layer.

4,340,142

TOBACCO RECOVERY FROM STEMMERY DISCARDS

Roger Z. de la Burde, Powhatan; Russell B. Mait, Richmond, and Francis V. Utsch, Midlothian, all of Va., assignors to Philip Morris Incorporated, New York, N.Y.

Filed Aug. 7, 1980, Ser. No. 176,228
Int. Cl.³ B03B *1/02*
U.S. Cl. 209—11 **2 Claims**



1. A method of separating a tobacco and sand mixture having a high sand content comprising:

a. Drying said tobacco and sand to 1 to 5 percent moisture to reduce the adhesive forces between said tobacco and sand;

b. [m]Mechanically agitating said dried tobacco and sand to disrupt mechanical bonds between said tobacco and sand;

c. [p]Passing said dried and agitated tobacco and sand through an electrostatic separator wherein said electrostatic separator operates at a voltage range of approximately 9 to 15 kilovolts[.] and separates said tobacco and sand into three fractions, a fraction that is pinned to a rotating drum in said separator, a middling fraction, and a fraction that is deflected away from the drum; and

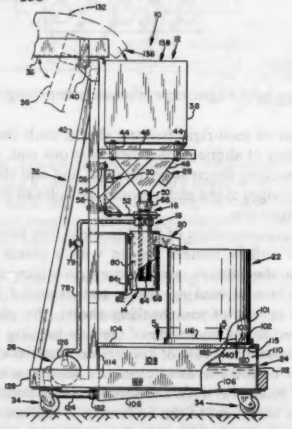
d. Discarding said middling group and collecting said pinned and deflected groups.

4,340,143

HYDRAULIC BEAN CLEANING PROCESS AND APPARATUS

Jerome F. Moshofsky, Portland, and Jerry Trout, Bridal Veil, both of Oreg., assignors to Russell E. Waddle, Portland, Oreg.

Filed Jan. 2, 1980, Ser. No. 109,176
Int. Cl.³ B03B *5/62*
U.S. Cl. 209—158 **12 Claims**



10. A method of separating objects having slightly differing specific gravities, comprising:

discharging a feed stock of said objects in a continuous column downwardly from a first outlet into a lower portion of a tank having a closed bottom and containing a single liquid separating medium having a specific gravity less than the specific gravity of said objects;

discharging additional said medium from a second outlet into said lower portion at the level of said first outlet in a continuous downward flow closely surrounding and parallel to said column of feed stock to entrain said objects in the downward flow of said medium;

reversing said downward flow to establish an upward flow of said medium around said column; and

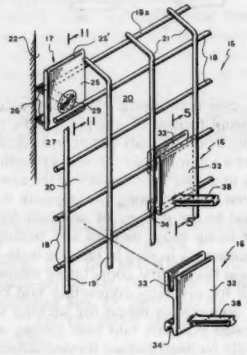
controlling the rate of discharge of said medium to produce a high velocity turbulent downflow such that said objects are agitated and drawn downwardly and laterally away from said first outlet and objects of a lesser specific gravity are borne upwardly by the medium while objects of greater specific gravity sink to the bottom against said upward flow.

4,340,144

ARTICLE SUPPORT ARRANGEMENT

Morison S. Cousins, New York, N.Y., assignor to Heller Designs, Inc., New York, N.Y.

Filed Jun. 20, 1980, Ser. No. 161,243
Int. Cl.³ A47F *5/08*
U.S. Cl. 211—87 **12 Claims**



1. An article support arrangement comprising:

(a) a grid adapted to be mounted on a wall, the grid having a plurality of non-circular openings,

(b) a plurality of article support elements adapted to be mounted on the grid, each element having a non-circular base and a projection extending from the base for engaging an article to be supported, the base fitting into any selected one of the plurality of openings in the grid,

(c) the base having means for holding opposite edges of a grid opening so as to prevent the article support element, once accommodated within a grid opening, from being pulled directly out of the plane of the grid, the preventing means including two grooves in the base of the article support element, the grooves opening in opposite directions and being capable of accommodating two opposite edges of a grid opening, and

(d) a protuberance projecting into one of the two grooves from one side of the groove to at least partially reduce the size of the opening into that groove.

4,340,145

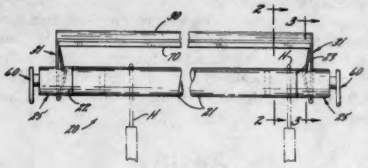
CADDY FOR GARMENT HANGERS

Anson W. Cameron, 3109 Walden La., Wilmette, Ill. 60091

Filed Jul. 18, 1980, Ser. No. 170,190
Int. Cl.³ A47H *13/00*
U.S. Cl. 211—124 **4 Claims**

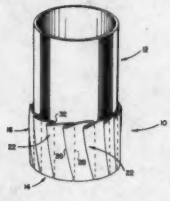
1. A caddy for garment hangers comprising, in combination, a thin walled hollow tube having a longitudinally extending internal bead, a pair of end plugs of hollow cylindrical shape fitted in the respective ends thereof, the end plugs having an inserted portion providing a press fit with respect to the tube and having an outwardly extending portion having a pair of transversely alined openings formed therein, each end plug

having a shoulder midway along its length and which serves as a stop to limit the degree of insertion, the inserted portion of each end plug having a longitudinal groove to provide mated clearance for the bead on the tube and to insure that the end caps are oriented so that the openings therein face precisely in the same direction, a hanger clamping member extending between the openings parallel to the tube, the clamping member having rectangularly secured at the respective ends thereof



and registering with the alined openings a pair of latching members in the form of leaf springs each having a straight portion and a reversely bent end portion carrying a latch surface at the side thereof, the reversely bent portions being laterally sprung so that each latch surface engages a land surface on the inner wall of the associated end plug when the clamping member is in an outwardly spaced hanger-receiving position and engages a land surface on the outer wall of the end plug when the clamping member is in an inwardly pressed clamping position.

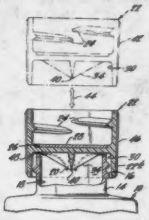
4,340,146
DISPOSABLE COASTER
John R. Stratton, 6735 Churchill Way, Dallas, Tex. 75230
Filed Dec. 10, 1979, Ser. No. 101,487
Int. Cl.³ B65D *23/06*
U.S. Cl. 215—100.5 **1 Claim**



1. A disposable coaster for use with a beverage container comprising a substrate of moisture absorbent material, said substrate having a base panel and a pleated sidewall joined to the base panel thereby forming a shell having an open end, with the moisture absorbent substrate forming the inside surface of the shell, and a sealing film deposit applied to the outside surface of the shell, said pleated sidewall including folded, vertically overlapping major and minor fold segments which define a vertically extending reservoir for accumulating moisture, the major and minor fold segments being partitioned by an inwardly disposed upright crease and an outwardly projecting inclined crease, respectively, said outwardly projected inclined crease sloping upwardly and outwardly from said base panel whereby said outwardly projecting crease is inclined with respect to and extends transverse to said inwardly disposed upright crease, thereby defining a reservoir space into which condensate can flow by capillary action.

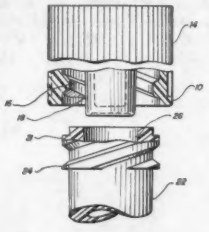
4,340,147
CAP WITH BUILT IN PIERCING DEVICE
James A. McIntosh, Montclair, N.J., assignor to Mack-Wayne Plastics Company, Wayne, N.J.
Filed Nov. 3, 1980, Ser. No. 203,357
Int. Cl.³ B65D *51/24*
U.S. Cl. 215—226 **5 Claims**

1. A dual function cap for a container having a sealed discharge opening, said cap being of generally elongated tubular configuration and having a dividing wall therebetween defining a pair of open ended cup-like cap portions, means on the inner periphery of the sidewalls of one of said cap portions for detachably mounting over the discharge opening of the container, piercing element contained in the other cap portion



projecting from the dividing wall toward the open end of said other cap portion, tapered sidewalls within the other cap portion of regressive conical configuration extending a predetermined distance beyond all portions of the piercing element functioning to centrally guide the piercing element onto the sealed discharge opening of the container.

4,340,148
LUER CAP
David S. Beckham, Fox Lake, Ill., assignor to Baxter Travenol Laboratories, Inc., Deerfield, Ill.
Filed Oct. 14, 1980, Ser. No. 196,988
Int. Cl.³ B65D *41/04, 41/34*
U.S. Cl. 215—329 **13 Claims**



1. In a medical device having a port comprising an annular wall, an axial bore defined within said annular wall, and thread engaging means carried by said annular wall, the improvement comprising, in combination: a cap mounted on said port, said cap comprising a circular sidewall having an inside wall surface;

a hollow tubular portion disposed interior of said sidewall and defining an internal port-receiving cavity between said tubular portion and the inside surface of said sidewall for receiving said annular wall of said port, said hollow tubular portion of said cap being disposed within the bore of said port when said annular wall of said port is received within said port-receiving cavity;

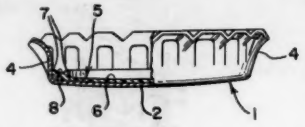
said hollow tubular portion being closed at one end by an end wall and open to the atmosphere at the opposite end; and

the inside surface of said cap sidewall carrying threads for engagement with the thread engaging means of said annular wall of said port.

4,340,149
LINED CLOSURE

Fumio Mori, Yokohama; Gunji Matsuda, Isehara; Toshihiko Yoshida, and Shigeru Nagashima, both of Hiratsuka, all of Japan, assignors to Toyo Seikan Kaisha, Ltd., Tokyo, Japan

Continuation of Ser. No. 59,196, Jul. 20, 1979, abandoned. This application Oct. 28, 1980, Ser. No. 201,608
Claims priority, application Japan, Jul. 22, 1978, 53-88954
Int. Cl.³ B65D *53/06*
U.S. Cl. 215—343 **5 Claims**



1. A vessel closure which comprises an aluminum shell, the inner face of which is lined with an olefin resin which has been press-molded in situ onto said inner face, the difference ($I_o^P - I_o^C$) between the in-plane orientation index (I_o^P) of the peripheral portion of the press-molded olefin resin liner and the in-plane orientation index (I_o^C) of the central portion of the press-molded olefin resin liner being less than 0.37, said in-plane orientation index (I_o) being represented by the following formula:

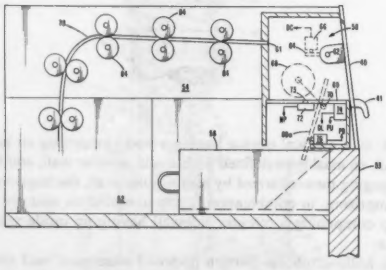
$$I_o = l + m$$

wherein l represents the orientation coefficient in the radial direction of the liner and m represents the orientation coefficient in the circumferential direction of the liner.

4,340,150
AUTOMATIC NOTE DISPENSER WITH PURGE CONTROL

Ronald D. Guibord, Boylston; Neil W. Harman, and Richard E. Hennessy, both of Marlborough, all of Mass., assignors to Honeywell Information Systems Inc., Waltham, Mass.

Continuation of Ser. No. 103,655, Dec. 14, 1979, abandoned. This application Apr. 16, 1981, Ser. No. 255,002
Int. Cl.³ G07F *11/00*
U.S. Cl. 221—21 **21 Claims**

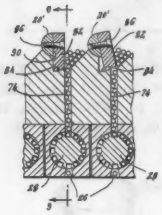


1. A note dispensing system comprising, in combination:
means for requesting a note dispensing operation;
a dispensing chamber having an access door by which an operator can gain access to said chamber;
means for dispensing at least one note into said chamber in response to a dispensing operation request;
security means for locking said access door during a note dispensing operation and for unlocking said door upon completion of said operation to permit said operator to open said door to remove said note; and
purge means for discharging said dispensed note from said chamber if said door is not opened within a set period of time following the unlocking of said door by said security means,
said dispensing chamber comprising fixed top, rear and side walls,
one of said fixed walls being formed with a narrow slot for receiving notes from said means for dispensing,
said means for dispensing being blocked from an opening covered by said access door by said fixed walls,
said dispensing chamber further comprising a bottom wall tiltable about a shaft,
said purge means comprising means for tilting said bottom wall about said shaft for purging only when said access door is closed whereby said bottom wall coacts with said top, rear and side walls to prevent access to said means for dispensing through the opening covered by said access door.

4,340,151
STICK FEEDING APPARATUS

Edward D. Cottrell, Cattaraugus, N.Y., assignor to Champion International Corporation, Stamford, Conn.

Continuation of Ser. No. 913,532, Jun. 8, 1978, Pat. No. 4,209,112, and Ser. No. 151,913, May 21, 1980, abandoned. This application Aug. 8, 1980, Ser. No. 176,556
Int. Cl.³ B65H *3/44*
U.S. Cl. 221—93 **4 Claims**



1. An apparatus for delivering sticks to a predetermined position at a controlled rate comprising:
a hopper having converging sidewalls defining an entry to a delivery chute, said chute being wide enough to accept only one stick at a time;
a delivery roller aligned with said delivery chute, said roller including a plurality of equiangularly spaced recesses extending along the length of said roller for receiving sticks from the delivery chute;
a housing surrounding said delivery roller and having a first opening aligned with said delivery chute and a second opening adjacent the predetermined position, said housing acting to retain each stick in the roller recesses at positions intermediate the first and second openings;
drive means for rotating said roller at a predetermined rate to cause sticks to be delivered to the second opening at the controlled rate, said drive means including means for driving said roller through predetermined angular increments of movement, said increments being equal to or integral submultiples of the circumferential spacing of the recesses in said roller, with said drive means further including;
(a) a ratchet mechanism including a ratchet wheel secured to and rotatable with said delivery roller and a pawl intermittently engageable with said ratchet wheel to drive said delivery roller through the predetermined angular increment of movement; and
(b) hydraulic drive means for reciprocating said pawl along an arcuate path; and
a crank member freely rotatable about the delivery roller axis of rotation, said crank member being pivotally connected to said pawl at a first point and to said drive means at a second point, said drive means comprising a recipro-

cable hydraulically-driven rod for intermittently moving said crank member through a predetermined arc; and

an agitating member mounted within said hopper adjacent the entry to the delivery chute for agitating the sticks to reduce the chances of jamming, said agitating member comprising a leaf plate; and

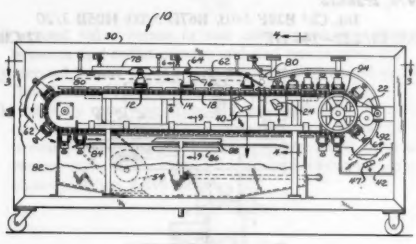
means for oscillating said leaf plate.

4,340,152

METHOD AND APPARATUS FOR REMOVING THE CONTENTS OF FLEXIBLE OR COLLAPSIBLE CONTAINERS

Carl R. Ekholm, Jr., Elgin, Ill., assignor to Baxter Travenol Laboratories, Inc., Deerfield, Ill.

Filed Aug. 8, 1980, Ser. No. 176,548
Int. Cl.³ B67B *7/00*
U.S. Cl. 222—1 **26 Claims**



1. Apparatus for removing the contents of a compressible container comprising:

compression means including a pair of relatively movable plates defining a container receiving space therebetween;

continuous conveyor means for carrying said plates between first and second locations;

means for moving said plates between an open spaced-apart position at said first location to receive a container, and a closed adjacent position at said second location to compress said container to discharge the contents thereof; and

retention means cooperatively associated with said plates to retain a container therebetween during said compression.

22. A method for removing the contents of a compressible container comprising;

positioning said container between a pair of relatively movable plates which define a container receiving space therebetween;

transporting said pair of plates between first and second spaced locations;

moving said plates together during said transporting of said plates between said first and second locations so as to compress the container to discharge the contents of said container through one end thereof;

retaining said container between said plates during compression of the container to prevent accidental dislocation of the container from between said plates.

4,340,153

METHOD AND APPARATUS FOR MEDICATION DISPENSING

David L. Spivey, 11000 SW. 174th Ter., Miami, Fla. 33157

Filed Nov. 28, 1980, Ser. No. 211,310
Int. Cl.³ B67B *7/00;* **B67D** *5/60*
U.S. Cl. 222—1 **9 Claims**

1. A device for automatic mixing and dispensing of preselected quantities of liquids in an aseptic environment, comprising:

a source of said liquids,

a plurality of selection means for inputting said preselections,

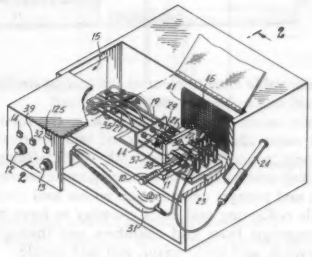
a plurality of cylinders, each containing a piston which moves longitudinally within said cylinder, and each of said cylinders corresponding to a particular one of said selection means,

a plurality of syringes, each containing a plunger, and each of said syringes corresponding to a particular one of said cylinders,

a plurality of adjustable connectors, each of said connectors corresponding to a particular one of said cylinders and connecting said corresponding syringe plunger to said corresponding piston, so that longitudinal movement by said piston within said cylinder causes longitudinal movement of said plunger within said syringe,

a manifold for directing the output of each of said syringes into a common output,

supply means for supplying each of said syringes with one of said liquids from said source,



a plurality of valve means, each of said valve means corresponding to one of said cylinders and connected thereto for introducing and exhausting pressurized fluid from external source to said cylinder so as to cause said piston and said corresponding plunger to be longitudinally moved,

control means interconnecting said valve means and said selection means for sequentially and repetitively activating each of said valve means for a determined time period a number of times correlated to said preselection inputted into said corresponding selection means,

an enclosure to contain said cylinders, syringes, manifold, connecting, supply means, valve means, and control means, and

filter and blower means whereby ambient air is filtered to remove infectious bodies and drawn into said enclosure thereby providing a positive pressure of aseptic air.

4,340,154

CAULKER FOR DISPENSING TWO VISCOUS COMPONENTS

Dick T. VanManen, Canandaigua, N.Y., assignor to Voplex Corporation, Pittsford, N.Y.

Continuation-in-part of Ser. No. 200,474, Oct. 24, 1980, abandoned. This application Nov. 14, 1980, Ser. No. 206,886
Int. Cl.³ B65D *35/22, 35/30*
U.S. Cl. 222—94 **14 Claims**

1. A caulker for dispensing two viscous components, said caulker comprising:

a. a generally cylindrical outer chamber, open at its rear end, formed of molded resin for holding one of said components;

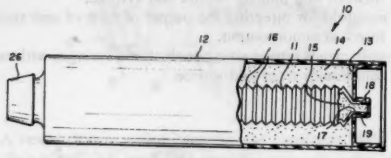
b. a collapsible inner chamber formed of molded resin and arranged within said outer chamber for holding the other of said components;

c. said inner chamber being formed with accordion pleats for folding in a predetermined accordion collapse when said inner chamber is axially compressed;

d. said inner chamber having a rear end filling opening;

e. a molded resin plunger;

f. means for securing said plunger to the rear end of said inner chamber;
g. said plunger being shaped to fit closely within said outer chamber;
h. means for joining a forward region of said inner chamber to a forward region of said outer chamber;
i. passageways from each of said chambers merging at the forward end of said caulker;
j. an openable barrier for sealing the forward end of said inner chamber passageway;



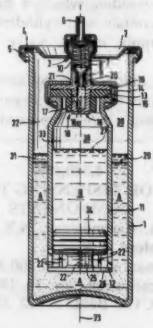
k. a removable closure element for sealing the forward end of said outer chamber passageway; and
l. a static mixer and nozzle joinable to the forward end of said outer chamber in place of said removable closure element to communicate with said passageways after opening said barrier and removing said closure element so that said plunger can advance within said outer chamber while collapsing said inner chamber to force both of said components from said chambers and through said passageways, said static mixer, and said nozzle.

4,340,155

TWO-COMPARTMENT PACK

Gerhard Obrist, Kaiseraugst, Switzerland, assignor to Aerosol Service AG, Möhlin, Switzerland

Filed Aug. 13, 1980, Ser. No. 177,640
Claims priority, application Switzerland, Aug. 24, 1979, 7701/79
Int. Cl.³ B65D *83/00*
U.S. Cl. 222—135 **16 Claims**



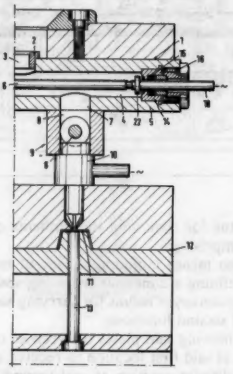
1. A two-compartment pack comprising an outer container, of substantially stable shape and provided with a dispensing valve, for a first component of the package material, an inner container, located in the outer container, for a second component of the package material, and means for mixing the two components of the package material and dispensing them conjointly, wherein the inner container is elongate and is open at one end, a plunger which can slide sealingly between two terminal positions is located in the inner container and in its inner terminal position, more remote from the open end of the inner container, separates said open end from the internal chamber of said inner container and in its outer terminal position, closer to said open end, opens a passage orifice between the internal chamber of the inner container and the internal chamber of the outer container, said inner container has a gas inlet which communicates with the internal chamber of the outer container and comprises a non-return valve which leads into the internal chamber of the inner container, which internal chamber is sealed by the plunger in its inner terminal position, and the outer and the inner container each contain a cushion of a gas under superatmospheric pressure.

4,340,156

ARRANGEMENT FOR SUPPLYING MOLTEN PLASTIC MATERIAL

Walter Müller, Battenberg, Fed. Rep. of Germany, assignor to Ewikon Entwicklung und Konstruktion GmbH & Co. KG, Herford, Fed. Rep. of Germany

Filed Sep. 25, 1980, Ser. No. 190,825
Claims priority, application Fed. Rep. of Germany, Sep. 26, 1979, 2938832
Int. Cl.³ B29F *1/03;* B67D *5/00;* H05B *3/20*
U.S. Cl. 222—146 HE **32 Claims**



1. A hot runner injection manifold assembly having a single injection inlet and plural injection outlet nozzle suitable for coupling with a plural injection mold, comprising:
a first manifold member having an injection inlet connection and having plural apertures, each communicating with a passage of an elongated conduit member having at least one outlet nozzle suitable for coupling with the injection mold inlet, mainfold said mainfold member having an elongated flow passage substantially therethrough and a substantially straight rod-shaped elongated heating element extending completely therethrough and projecting therefrom at each end of said mainfold member.

4,340,157

SELF-SEALING CLOSURE DISPENSER FOR PLASTIC STAIN BOTTLES

James C. Darner, Shrewsbury, Pa., assignor to Becton, Dickinson & Company, Paramus, N.J.

Filed Nov. 20, 1980, Ser. No. 208,750
Int. Cl.³ B65D *37/00*
U.S. Cl. 222—211 **22 Claims**

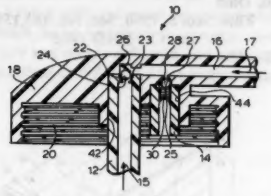
1. A dispensing cap for dispensing materials contained in containers having flexible walls, comprising
(a) a cap body;
(b) an outlet passage in said body;
(c) a feed tube in flow communication with said outlet passage for extending into a container connected to said body for engaging material therein;
(d) container connection means on said body;
(e) a return tube in flow communication with said outlet passage;

the improvement characterized by

(f) first valve means in said outlet passage positioned between said feed tube and said outlet passage;

(g) first means biasing said first valve means against flow from said feed tube to said outlet passage;

(h) whereby squeezing the flexible walls of a container attached to said body forces material therein up said feed tube overcoming said first biasing means;



(i) second valve means in said outlet passage positioned between said outlet passage and said return tube; and

(j) second means biasing said second valve means against flow from said outlet passage to said return tube;

(k) whereby removing pressure from the flexible walls of a container attached to said body causes a reduction of pressure thereon so that ambient pressure forces open said second valve means against said second biasing means and closes said first valve means.

4,340,158

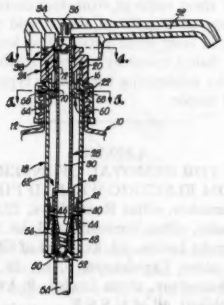
VENT-SEALING, DOWN-LOCKED PUMP DISPENSER

John M. B. Ford, Lee's Summit, Mo.; Wallace F. Magers, Leawood, Kans., and John J. Palmisano, Gladstone, Mo., assignors to Realex Corporation, Kansas City, Mo.

Filed Jun. 13, 1980, Ser. No. 159,286

Int. Cl.³ B05B *11/00*

U.S. Cl. 222—321 **8 Claims**



1. In a dispensing pump having a tubular plunger that is reciprocable within a hollow barrel of the pump between extended and depressed positions for drawing liquid into the barrel during extension strokes and for discharging liquid from the barrel during depression strokes, the improvement comprising:

vent means associated with said barrel and adapted to communicate the interior of the latter with the interior of a container with which the pump is operably associated;

lock means operably associated with said plunger for releasably holding the latter in a locked position inwardly beyond said depressed position when the plunger is selectively moved to said locked position; a valve operable within said barrel between an open position exposing said vent means and a closed position sealably covering said vent means and precluding liquid flow into the barrel; and

structure operably associated with said plunger for opening said valve during reciprocation of the plunger between said depressed and extended positions, and for closing the valve during holding of the plunger at said locked position.

4,340,159

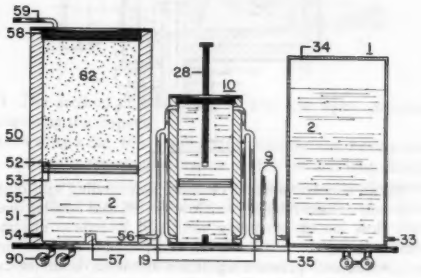
APPORTIONING CONTROL APPARATUS TO CONTROL MEASURED DISPENSING

Arthur E. Garrett, P.O. Box 204, Caldwell, Id. 83605

Filed Jul. 28, 1980, Ser. No. 172,699

Int. Cl.³ G01F *11/06, 13/00*

U.S. Cl. 222—389 **2 Claims**



1. Apportioning control apparatus comprising:

a substantially cylindrical apportioner housing sealed at one end and having a removeable sealing member at an opposing end and having an internal bore operable to receive a piston and including at least one inlet port and at least one outlet port, vertically spaced and in fluid communication with the bore;

a free-floating piston engaging the internal wall of the bore and adapted for reciprocal movement therein;

an adjustable piston stop mounted at one end of said housing and operable to stop said piston at a preselected distance from the end whereby a measured volume of working liquid may be discharged from the bore;

a plurality of valves operable to selectively open and close said ports, permitting infusion of working liquid into the bore above or below said piston and a simultaneous draining of a working liquid from the bore on the opposing side of said piston;

switch means operable to control said valves;

a working liquid source in fluid communication with the inlet ports of said apportioner housing;

pump means operable to force working liquid from said source through the inlet ports; and

food dispensing means in fluid communication with the outlet ports of said apportioner housing, said food dispensing means operable to dispense food in a volume equal to the volume of working liquid received from said outlet ports of said apportioner housing.

4,340,160

OVERFLOW SYSTEM HAVING PNEUMATIC PRESSURE CONTROL

Jacobus N. C. van Geel, Retie; Frans M. Dobbels, Dessel, and Walther A. H. Theunissen, Hamont, all of Belgium, assignors to Deutsche Gesellschaft fur Wiederaufarbeitung, Fed. Rep. of Germany

Filed Feb. 25, 1980, Ser. No. 124,297

Claims priority, application United Kingdom, Feb. 27, 1979, 7906813

Int. Cl.³ B22D *39/06*

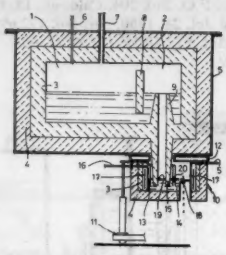
U.S. Cl. 222—595 **4 Claims**

1. Device suitable for controlling the discharge of a molten material from a melter, characterized in that it comprises:

a melting vessel for molten material, comprising a tubular overflow outlet having an inlet at the surface of the molten material and an outlet end therebeneath for molten material;

an overflow discharge unit provided under said outlet and comprising:

(a) an overflow chamber provided with at least one outlet nozzle at its overflow level(s), and



(b) an annular pressure chamber surrounding said outlet end of said tubular overflow outlet, said tubular overflow outlet extending into said overflow chamber below said overflow level, said pressure chamber provided with pressure regulation means and communicating with said overflow chamber.

4,340,161

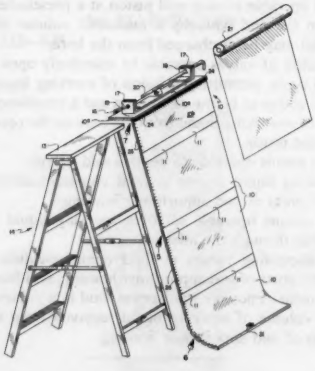
WALLPAPER PREPARATION BOARD

William G. Stafford, 2584 Dublin Dr., Salt Lake City, Utah 84119

Continuation of Ser. No. 49,738, Jun. 18, 1979, abandoned. This application Dec. 8, 1980, Ser. No. 214,125

Int. Cl.³ B26F *3/02*

U.S. Cl. 225—18 **12 Claims**



1. A wallpaper preparation board comprising

a plurality of substantially flat, rigid panels of sheet material, said panels being hingedly attached end-to-end to form an elongate wallpaper preparation board which can be folded in accordion style into a compact unit, with the panels being adapted to be folded back and forth so that adjacent panels lie face-to-face in the folded unit and the folded unit has an outer perimeter substantially the same as that of the component panels;

means for supporting a roll of wallpaper near the upper end of the elongate preparation board so that lengths of wallpaper can be withdrawn from the roll along the preparation board; and

a knife edge extending across the preparation board near the means for supporting the roll of wallpaper to aid in cutting the lengths of wallpaper which are withdrawn from the roll.

4,340,162

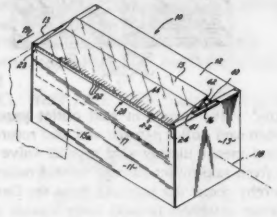
ROLL DISPENSER CARTON

Joseph L. Heiman, Loveland, and Bernard S. Reckseit, Cincinnati, both of Ohio, assignors to The Nivison-Weiskopf Co., Cincinnati, Ohio

Filed Sep. 2, 1980, Ser. No. 183,155

Int. Cl.³ B26D *1/02*

U.S. Cl. 225—48 **8 Claims**



1. A roll dispenser carton comprising

at least three panels joined one to the other in carton configuration, said carton being sized to receive a roll of sheet material therein, and said sheet material being withdrawable from said carton in a discharge direction, and

a cutting edge structure connected to at least one panel of said carton, said cutting edge structure comprising

a series of buds extending outwardly from said panel, each of said buds comprising at least two petals adapted to engage sheet material unwrapped from said roll for tearing a desired length of sheet material off said roll, said plural buds being positioned along at least one phantom line disposed generally perpendicular to the discharge direction of said sheet material from said carton, each of said buds defining an axis about which said petals are positioned, and at least some petals of at least some of said buds being flared inwardly relative to the axes of those buds, thereby minimizing scratching type hazards to the user of said carton.

4,340,163

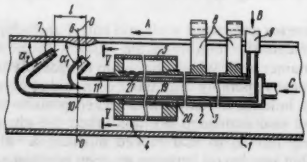
APPARATUS FOR REMOVAL OF INTERNAL FLASH FROM ELECTRIC-WELDED PIPES

Alexandr A. Romashov, ulitsa Rossiiskaya, 222, kv. 136; Gennady E. Levinsky, ulitsa Voroshilova, 3, kv. 15; Vladimir Y. Ivantsov, prospekt Lenina, 62, kv. 2, all of Chelyabinsk; Igor A. Astakhov, ulitsa Zavodskaya, 6, kv. 29, Taganrog, and Vladimir A. Kuznetsov, ulitsa Lenina, 9, kv. 38, Polevskoi Sverdlovskoi oblasti, all of U.S.S.R.

Filed Jun. 17, 1980, Ser. No. 160,229

Int. Cl.³ B23K *7/06, 31/10*

U.S. Cl. 228—19 **8 Claims**



1. An apparatus for removal of internal flash from electric-welded pipes, comprising: a hollow supporting bar inserted

into a pipe being welded; an oxygen duct incorporated in said hollow supporting bar; a ferrite-holder mounted on said hollow supporting bar; a main oxygen nozzle of said oxygen duct; an additional oxygen nozzle placed downstream of the main nozzle with respect to the direction of pipe welding; an oxygen conduit serving as a conduit common to said main and additional nozzles mounted on said oxygen duct and communicating therewith; an oval outlet of said main nozzle; an oval outlet of said additional nozzle, the outlets of the main and the additional nozzles having different sized openings; said main and additional nozzles being arranged in a single plane passing through pipe axis and weld; said main and additional nozzles being set in said plane at different acute angles with respect to the weld.

4,340,164

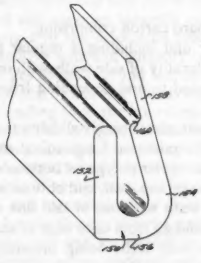
MASK FOR AN ATTACHABLE, CIRCUIT-TERMINATING, CIRCUIT BOARD EDGE MEMBER

Salvatore P. Rizzo, Foxboro, and William J. LaPlante, Rehoboth, both of Mass., assignors to Texas Instruments Incorporated, Dallas, Tex.

Filed May 29, 1980, Ser. No. 154,269

Int. Cl.³ B23K *37/00*; H05K *3/34*

U.S. Cl. 228—57 **2 Claims**



1. A mask for use with an attachable, circuit-terminating circuit board edge member having an elongated body with a tongue having a selected thickness and a front and back depending from the edge member along its length, a plurality of pairs of contact elements, one of each pair disposed on the front of the tongue and the other of each pair disposed on the back of the tongue, each of the contact elements formed with a solderable pin end which extends from the edge member, comprising an elongated, generally U-shaped mask formed of flexible material, the mask having first and second legs of approximately the same length extending from a bight portion to respective free distal end portions, the legs having a length at least as long as the distance the tongue extends from the body and having an inner surface, an extension formed on the first leg, the extension extending generally in the same direction as the first leg but offset from the inner surface of the first leg to form a shelf which extends along the length of the mask, the legs being spaced from one another at their bight a distance of slightly more than the said selected thickness of the tongue and at their distal end portions a distance approximately one half the said selected thickness of the tongue.

4,340,165

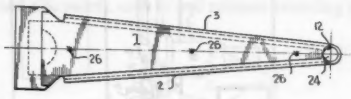
PRINTER ARM

James E. Bellinger, Melbourne, Fla., assignor to Florida Data Corporation, Melbourne, Fla.

Division of Ser. No. 29,658, Apr. 13, 1979, Pat. No. 4,248,540, which is a continuation of Ser. No. 621,526, Oct. 10, 1975, abandoned, which is a division of Ser. No. 865,006, Dec. 27, 1977, Pat. No. 4,206,266. This application Apr. 28, 1980, Ser. No. 145,062

Int. Cl.³ B23K *33/00*; B23P *15/00*

U.S. Cl. 228—173 C **4 Claims**



1. The method of fabricating an arm and stylus structure comprising the steps of

providing a flat, thin blank for forming the arm having two generally rectangular regions with short and long dimensions and an integral web portion positioned therebetween and having short and long dimensions, said web region having its long dimensions each juxtaposed to a short dimension of a different one of said rectangular sections, said blank also including four generally triangular regions each of which is integrally associated with a different long dimension of said rectangular regions, said triangular regions each tapering from a maximum outward extension from an adjacent rectangular region remote from said web portion to a minimum extension adjacent said web portion; bending said four triangular regions along said rectangular region long dimensions to position said triangular regions at right angles to said rectangular regions with all of said triangular regions extending normal to one side of said rectangular regions; bending said blank about a stylus such that the web forms a generally semicylindrical member having a longitudinal axis generally parallel to said long dimension of said web, said web substantially circling at least one-half of the stylus such that opposed pairs of said triangular regions are in overlapping relationship to one another; bonding said overlapping triangular regions one to the other; and, securing said stylus to said web.

4,340,166

HIGH SPEED WIRE BONDING METHOD

Glenn B. Bilane, Huntington Valley; Lawrence M. Rubin, Coatesville; Albert Soffa, Wynnewood, and Dan Vilenski, Hatboro, all of Pa., assignors to Kulicke & Soffa Industries, Inc., Horsham, Pa.

Division of Ser. No. 962,916, Nov. 22, 1978, Pat. No. 4,266,710. This application May 4, 1981, Ser. No. 260,352

Int. Cl.³ B23K *31/02*

U.S. Cl. 228—179 **3 Claims**

1. A method for high speed bonding fine wire to a semiconductor device comprising the step of:

moving a bonding tool to a position opposite an electrode on a semiconductor device,

accelerating said bonding tool toward said electrode,

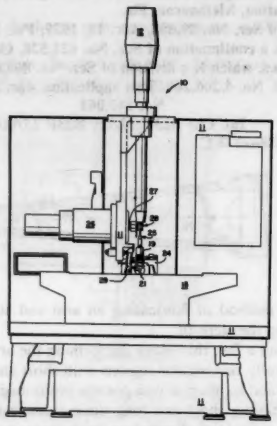
terminating said acceleration of said bonding tool before engaging said semiconductor device,

further moving said bonding tool toward said semiconductor device at a substantially linear velocity,

engaging said semiconductor device with said bonding tool at said linear velocity to impart controlled kinetic energy to said fine wire as a first bonding force,

applying a second predetermined preload bonding force to

said first bonding force at the time of engagement of said bonding tool with said semiconductor device, and



applying a third and final bonding force to said bonding tool after the termination of said first bonding force.

4,340,167

COATED PRINTED CIRCUIT WIRING BOARD AND METHOD OF SOLDERING

Marvin Packer, Broomall, Pa., and Otis D. Black, Willingboro, N.J., assignors to RCA Corporation, New York, N.Y.

Division of Ser. No. 864,624, Dec. 27, 1977, Pat. No. 4,215,025. This application Oct. 26, 1979, Ser. No. 88,556

Int. Cl.³ B23K *1/02;* **H05K** *3/34*

U.S. Cl. 228—180 R **9 Claims**

1. A method of soldering components to printed circuit boards which comprises the ordered steps of:

(a) coating a first side of a printed circuit board with a mixture comprised of 100 parts by weight of a water soluble polymeric compound or mixture of compounds which can be dissolved in water to give greater than about a 45% by weight solids content and a viscosity range of about 8 to about 12 poises at about 25° C., about 10 to about 40 parts by weight of isopropyl alcohol, about 10 to about 40 parts by weight of water, about 1 to about 4 parts by weight of a nonionic wetting agent, and about 0.1 to about 6 parts by weight of a water soluble organic acid having a keto-oxygen group within 4 carbon atoms of the carboxylic acid group,

(b) drying the coated printed circuit board to remove a sufficient amount of the water and isopropyl alcohol to convert the applied mixture into a dry transparent, non-flowing, water soluble film on the first surface,

(c) activating the film with a blend of alcohol and water so as to make the film tacky,

(d) adhering the components to the tacky film on the first side of said printed circuit board,

(e) fluxing the opposite side of the printed circuit board,

(f) soldering the fluxed side of the printed circuit board, and

(g) rinsing the film from the first surface of the printed circuit board.

6. A printed circuit board capable of having electronic components adhered thereto during soldering operations comprising a printed circuit board, and a transparent non-flowing water soluble film on a side of said printed circuit board upon which said components are to be adhered said film being obtained by coating said side with a mixture comprised of 100 parts by weight of a water soluble polymeric compound or mixtures of compounds which can be dissolved in water to give a greater than about 45% by weight solids content, and a viscosity range of about 8 to about 12 poises at about 25° C., about 10 to about 40 parts by weight of isopropyl alcohol, about 10 to about 40 parts by weight of water, about 1 to about 4 parts by weight of a wetting agent, and about 0.1 to about 6 parts by weight of a water soluble organic acid having a keto oxygen group within 4 carbon atoms of the carboxylic acid group and thereafter drying said coating to remove sufficient water and alcohol to form said transparent non-flowing water soluble film on said side.

4,340,168

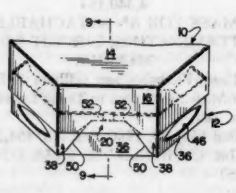
CARTON WITH LOCKING MECHANISM FOR SLIDABLE TOP AND BOTTOM

George Webinger, Robbinsdale, Minn., assignor to Champion International Corporation, Stamford, Conn.

Continuation-in-part of Ser. No. 102,898, Dec. 12, 1979, Pat. No. 4,277,014. This application Oct. 22, 1980, Ser. No. 199,581

Int. Cl.³ B65D *5/32;* **A61L** *9/04*

U.S. Cl. 229—23 BT **4 Claims**



1. A paperboard carton comprising:

(a) an upper unit including a regular polygonal top wall having a plurality of side walls with one of said side walls being coupled to and depending from each edge of said top wall;

(b) a lower unit telescopingly slidably movable in said upper unit along a common longitudinal axis, said lower unit including a regular polygonal bottom wall complimentary in shape to said top wall, said bottom wall having a plurality of side walls with one of said side walls being coupled to and depending from each edge of said bottom wall, said lower unit side walls being inwardly adjacent to said upper unit side walls;

(c) said upper unit being axially slidable with respect to said lower unit between a closed position and an open position;

(d) access means in at least one of said upper and lower units for opening the interior of said carton to ambient surroundings only when said upper unit is in said open position; and

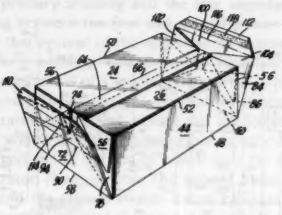
(e) cooperating locking means on said upper and said lower units to preclude complete removal of said upper unit from said lower unit when said upper unit is moved to said open position, said locking means comprising: a plurality of locking flaps hingedly coupled to distal edges of a plurality of said side walls of one of said upper and lower units, said locking flaps being folded against said side walls to provide a plurality of locking surfaces; and a plurality of stop tabs folded against comparable side walls on the other of said upper and lower units to provide a plurality of stop surfaces, said locking surfaces, and said stop surfaces being axially spaced apart when said upper unit is in said closed position, and said locking surfaces and said stop surfaces being in abutting contact when said upper unit is in said open position to preclude complete separation of said upper unit from said lower unit.

4,340,169

COLLAPSIBLE TRAY

George P. Webinger, Robbinsdale, Minn., assignor to Champion International Corporation, Stamford, Conn.

Filed Mar. 4, 1981, Ser. No. 240,572
Int. Cl.[3] B65D 5/24, 5/46
U.S. Cl. 229—31 R 11 Claims



1. A collapsible tray comprising:

a generally rectangular bottom wall having a rectangular center panel and first and second rectangular bottom panels hingedly connected to opposed side edges of said center panel;

first and second upstanding end panels hingedly connected to the side edges of said bottom panels opposed to the hinged connections to said center panel;

first and second upstanding side panels hingedly connected to the remaining opposed side edges of said bottom wall, with the adjacent side edges of said end panels and said side panels being respectively hingedly connected to define a continuous side panel structure, each said side panel having a center section disposed co-extensive with and hingedly connected to the adjacent side edge of said center panel and with each said side panel further including first and second side sections hingedly connected to the opposed side edges of the associated center section and disposed co-extensive with and hingedly connected to the adjacent side edges of the first and second bottom panels, each said side section of said side panels including a diagonal fold line extending from the intersection between said side section and said center panel of said bottom wall; and

a pair of handle flanges, respectively hingedly connected to the opposed side edges of said side panels, each said handle flange capable of being rotated at an angle relative to said side panel and extending away from the interior of said tray, said handle flanges thereby providing a means for carrying said tray and for rigidifying said tray, said tray being collapsible into an enclosed carton by upwardly folding said bottom panels of said bottom wall relative to said center panel thereof such that said bottom panels define side walls of said enclosed carton and said end panels cooperate to define a continuous top wall, and with each said side section being folded inwardly about said diagonal fold line such that said side sections and said center section of each said side panel overlap to define a triple ply end wall structure, whereby an enclosed carton is defined.

4,340,170

ARTICLE CARRIER AND A BLANK FOR FORMING THE SAME

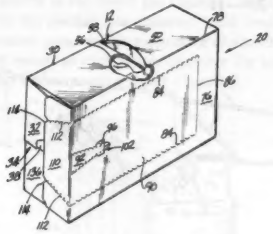
James Montealegre, St. Paul, Minn., assignor to Champion International Corporation, Stamford, Conn.

Filed Sep. 25, 1980, Ser. No. 190,493
Int. Cl.[3] B65D 25/30
U.S. Cl. 229—52 B 1 Claim

1. An article carrier with an integral handle comprising:

a pair of opposed top and bottom panels;

a pair of opposed first and second side panels, with said top, bottom and side panels alternatively hingedly connected to form a generally rectangular tubular configuration said second side panel being formed with an inner and an outer panel which partially overlap and are adhesively connected to form a reinforcing strip for increasing the structural rigidity of the carrier; and handle means, said handle means being defined by a cut line, said cut line having a generally arcuate portion disposed in aid top panel and extending between the opposed side edges of said top panel adjacent said side panels, with the arcuate portion of said cut line defining a handle tab, said cut line additionally having a pair of portions which extend a short distance beyond the side edges of said top plane and into the opposed side panels, each of said portions extending at an



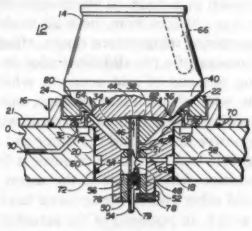
angle of approximately 30° to the vertical, said handle means further including a pair of stress relieving, generally elliptical, apertures respectively disposed in the opposed side panels, said apertures being contiguous with the distal ends of the associated portions of said cut line, said handle tab being foldable out of the plane of said top panel along a hinge line extending between the intersections of said arcuate cut line and said opposed side edges of said top panel, such that an opening is created in said top panel for the carrying of said carton, whereby said stress relieving apertures function to reduce the likelihood of tearing adjacent the opposed ends of said cut line.

4,340,171

AIR DRIVEN CENTRIFUGE ADJUSTABLE ROTOR SEAT

George N. Hein, Jr., San Carlos, Calif., assignor to Beckman Instruments, Inc., Fullerton, Calif.

Filed Aug. 29, 1980, Ser. No. 182,726
Int. Cl.[3] B04B 9/14
U.S. Cl. 233—23 R 9 Claims



1. An air drive centrifuge apparatus comprising:

a housing;

a rotor chamber within said housing;

a rotor positioned in said rotor chamber;

a rotor seat for receipt of said rotor;

means for driving said rotor;

means for supplying supporting air to said rotor during deceleration when said driving means is not operating; and

means responsive to said supporting air supply means for

automatically and continually self-adjusting the position of said rotor seat relative to said rotor so that said rotor will decelerate in a stable manner.

4,340,172

INTERNAL COMBUSTION ENGINE AIR INTAKE CONTROL SYSTEMS

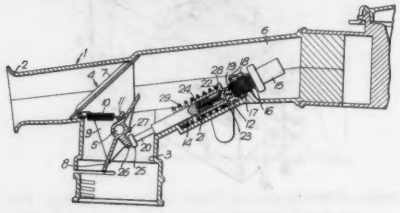
Edward C. Poore, Hedge End, England, assignor to General Motors Limited, Dunstable, England

Filed Feb. 27, 1981, Ser. No. 238,973

Claims priority, application United Kingdom, Mar. 10, 1980, 8008045

Int. Cl.³ G05N *23/13*

U.S. Cl. 236—13 **3 Claims**



1. An internal combustion engine air intake temperature control system in which a pivotal valve is movable between two extreme positions of angular movement to open one and close the other of a cold air inlet and a warm air inlet to an engine air intake passage, said valve being biased in a direction to close said cold air inlet, and a thermo-responsive device in said intake passage includes an actuator constructed so as, in response to increasing temperature in said intake passage, to engage said valve and move it against said bias to open said cold air inlet and close said warm air inlet, said valve also being movable to open said cold air inlet, against said bias, in response to a predetermined pressure differential across said valve, irrespective of the valve position determined by the thermo-responsive device, and said thermo-responsive device including a stop member constructed so that, when the temperature sensed by said thermo-responsive device is below a predetermined value, the stop member is positioned so as to prevent complete closure of said warm air inlet by said valve under said pressure differential, in which said thermo-responsive device further includes a wax-pellet power element, in which the expansion of a body of micro-crystalline wax in a housing, as the wax changes from the solid to the liquid state within a predetermined temperature range, effects the extension from the housing of a pin slidably sealed in the housing, the pin engaging one end of said actuator, which is slidably mounted on the wall of the intake passage, one end of said actuator being spring-biased into engagement with the pin of the thermo-responsive device, and the other end of the actuator being engageable with the valve to move it from the open to the closed position with respect to the warm air inlet, the valve and the said other end of the actuator having cooperating formations which, in positions of the actuator corresponding to temperatures below a predetermined value, engage to prevent full closure of the warm air inlet upon movement of the valve from the open position thereof relative to the warm air inlet, towards the closed position thereof, said cooperating formation portion of said actuator forming said stop member, in which said actuator includes a further spring which transmits the movement of said pin to effect movement of the actuator against said spring bias, but which yields when, under high temperature conditions, the extension of said pin is greater than that required to effect full closure of said warm air inlet by said valve.

4,340,173

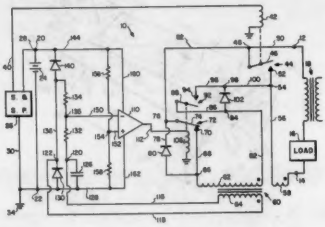
LOW VOLTAGE POWER SUPPLY

Arlon D. Kompelien, Richfield, Minn., assignor to Honeywell Inc., Minneapolis, Minn.

Filed May 4, 1981, Ser. No. 260,662

Int. Cl.³ H02J *7/00*; F23N *5/20*

U.S. Cl. 236—46 R **13 Claims**



1. A circuit for use with a condition sensor having an input connected to a rechargeable direct current source and an output which changes from a first value to a second value when the condition reaches a predetermined value comprising:

first and second power input terminals for connection to an alternating current source and a load device to be activated by the condition sensor;

comparator means having first and second input terminals and output means, the comparator operable to produce a change of signal from a first value to a second value at the output means when the voltage at the first input terminal of the comparator exceeds the voltage at the second input terminal of the comparator;

means connecting the second input terminal of the comparator to a source of voltage of predetermined magnitude;

storage means connected to the first input terminal of the comparator and operable to supply a voltage to the first input terminal of the comparator of magnitude which is a function of the voltage of the storage means and which may vary above and below the predetermined voltage;

first switch means connected to the output means of the comparator, the first switch means having an "on" condition when the signal at the output means is of the first value and having an "off" condition when the signal at the output means is of the second value;

second switch means connected to the output means of the comparator, the second switch means having an "off" condition when the signal at the output means is of the first value and having an "on" condition when the signal at the output means is of the second value;

third switch means connected to receive the output of the condition sensor and having an "off" condition when the output is of the first value and having an "on" condition when the output is of the second value;

a transformer having a low impedance primary winding, a high impedance primary winding and a secondary winding;

means connecting the secondary winding to the storage means and to the rechargeable direct current source so as to increase the voltage at the storage means whenever current of a first sense is generated at the secondary winding and to charge the rechargeable direct current source whenever current of a second sense is generated at the secondary winding;

means connecting the first switch means when in an "on" condition in a first series circuit with the high impedance primary winding and the low impedance primary winding between the first and second power input terminals so that current of the first sense is generated at the secondary winding whenever the signal at the power input terminals is of a first polarity for a time sufficient to increase the voltage at the first input terminal of the comparator to a value above the predetermined voltage at the end of

which time the output of the comparator changes from the first value to the second value and the first switch means changes to an "off" condition interrupting the first series circuit to stop the generation of the current of the first sense in the secondary winding;

means connecting the second switch means when in an "on" condition in a second series circuit with the high impedance primary winding and the low impedance primary winding between the first and second power input terminals so that current of the second sense is generated in the secondary winding whenever the signal at the power input terminals is of a second polarity for a time sufficient to decrease the voltage at the first input terminal of the comparator to a value below the predetermined value during which time the rechargeable direct current source is charged and at the end of which time the output of the comparator changes from the second value to the first value and the second switch means changes to an "off" condition interrupting the second series circuit to stop the generation of current of the second sense in the secondary winding; and

means connecting the third switch means when in an "on" condition in a third series circuit with the low impedance primary between the power input terminals, connecting the third switch means when in an "on" condition in a fourth series circuit with the first switch means when in an "on" condition across the high impedance primary and connecting the third switch means when in an "on" condition in a fifth series circuit with the second switch means when in an "on" condition across the high impedance primary, the current in the low impedance primary generating a current of the first sense in the secondary when the signal at the power input terminals is of the first polarity until the signal at the output means of the comparator changes from the first value to the second value at which time the second switch means changes to an "on" condition and the fifth series circuit provides a shunt across the high impedance primary stopping the current of the first source in the secondary, the current in the low impedance primary generating current of the second sense in the secondary when the signal at the power input terminals is of the second polarity until the signal at the output means of the comparator changes from the second value to the first value at which time the first switch means changes to an "on" condition and the fourth series circuit produces a shunt across the high impedance primary stopping the current of the second sense in the secondary.

4,340,174

WATER HEATING APPARATUS, WATER AND HEATING SYSTEM AND IMPROVED BOILER

James Regan, 115 Lawton/4A, Yonkers, N.Y. 10705

Filed Jun. 2, 1980, Ser. No. 155,438

Int. Cl.[3] **F24D** *3/08;* **F24H** *1/22*

U.S. Cl. 237—19 **5 Claims**

1. A heating and hot water system comprising:

(a) a substantially vertical chamber having an upper end and a lower end;

(b) a lower support plate mounted inside the chamber near the lower end having a lower gas chamber below the support plate and a lower water chamber above the plate;

(c) a first median support plate mounted inside the vertical chamber between the upper and lower chamber ends having a median gas chamber above the plate and the lower water chamber below the plate;

(d) a second median support plate mounted inside the vertical chamber between the upper and lower chamber ends and above the first median support plate, having the median gas chamber below the support plate and an upper water chamber above the plate;

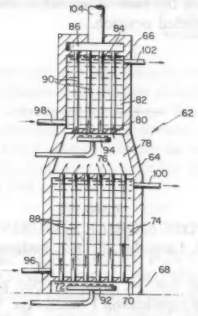
(e) an upper support plate mounted inside the vertical chamber near the upper chamber end having an upper gas chamber above the plate and the upper water chamber below the plate;

(f) a first set of substantially vertical tubes passing through the lower water chamber, each tube mounted to the lower plate and first median support plate at the tube ends and the interior of each tube in fluid communication with the respective gas chamber above and below the plates;

(g) a second set of substantially vertical tubes passing through the upper water chamber, each tube mounted to the upper plate and the second median support plate at tube ends, and the interior of each tube in fluid communication with the respective gas chamber above and below the plates;

(h) a first heat source in the lower gas chamber and a second heat source in the median gas chamber, each heat source producing heated gases in the respective chambers;

(i) a water inlet means to each water chamber for introducing water into the respective water chamber;



(j) a water outlet means from each water chamber for removing water from the respective water chamber;

(k) a hot water line in fluid communication with the outlet means of the upper water chamber and space heaters in fluid communication with the outlet means of the lower water chamber; and

(l) activation means for independently activating the first and second heat sources,

whereby when the demand for hot water and heat is required the first heat source is activated and the second heat source is not activated providing heated gases which pass through the first set of tubes and the second set of tubes, and when there is no demand for heat but demand for hot water the first heat source is not activated and the second heat source is activated providing heated gases which only pass through the second set of tubes.

4,340,175

MECHANICAL STRAW PENCIL

Ladislav Danek, c/o George Spector, 3615 Woolworth Bldg., 233 Broadway, and George Spector, 3615 Woolworth Bldg., 233 Broadway, both of New York, N.Y. 10007

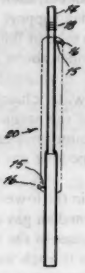
Filed Apr. 17, 1980, Ser. No. 141,044

Int. Cl.[3] **A47G** *21/18*

U.S. Cl. 239—33 **3 Claims**

1. A mechanical straw pencil shaped holder, comprising in combination, a tubular case open at each end, an extensible straw axially slidably mounted in said case said straw being outwardly slidable from said opposite ends of said case to

provide a mouthpiece at one end and an inlet at the opposite end for insertion into liquid, including means for retaining the



straw fully within the case when not in use and for retaining the straw in extended position.

4,340,176

ALL-PURPOSE MOBILE SCOURING MACHINE

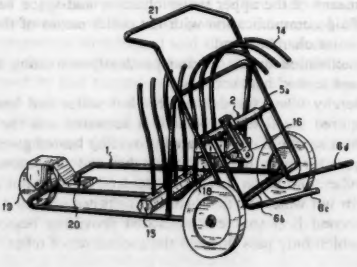
Jacques Bernard, Lamorley, France, assignor to Asnets, Paris, France

Filed Apr. 14, 1980, Ser. No. 140,112

Claims priority, application France, Apr. 18, 1979, 79 09700; Mar. 7, 1980, 80 05125

Int. Cl.³ B05B *3/14*

U.S. Cl. 239—102 **16 Claims**



1. An all purpose scouring machine comprising: a travelling carriage having a median plane;

at least one horizontal axle mounted on said carriage and extending transverse to said median plane;

a slider movably mounted on each said axle;

at least one nozzle holder apron mounted on said slider, each said apron comprising at least two cross members;

a plurality of parallel nozzles pivotally fixed to said cross members of each said nozzle holder apron;

means for supplying said nozzles with high pressure fluid;

motor means on said carriage; and

drive means connected between said motor means and each said nozzle holder apron for reciprocally moving each said nozzle holder apron along a respective said axle,

whereby the reciprocal movement of each said slider reciprocates said parallel nozzles in transverse motion on either side of said median plane.

4,340,177

SHOWER DEVICE

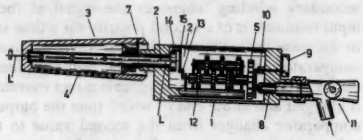
Markus Huber, Österreich, Fed. Rep. of Germany, assignor to Firma Friedrich Grohe Armaturenfabrik GmbH, Fed. Rep. of Germany

Filed Feb. 5, 1980, Ser. No. 118,383

Claims priority, application Austria, Feb. 7, 1979, 898/79

Int. Cl.³ B05B *3/16*

U.S. Cl. 239—242 **5 Claims**



1. A hand-held shower apparatus comprising a handle for said shower including an elongated housing connected to a water supply at one end and an elongated shower head mounted on the other end of said housing in longitudinal alinement therewith, wherein said shower head is carried by a connecting pipe oscillating about its axis in said housing and concentric with the shower head, wherein said connecting pipe oscillates by means of eccentric driving means.

4,340,178

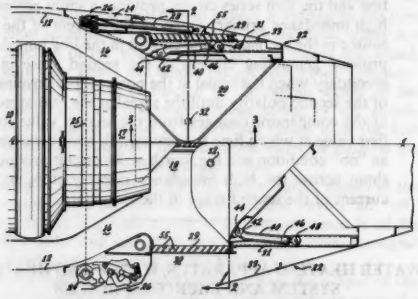
THRUST REVERSER - CASCADE TYPE

Dale W. R. Lawson, Bonita, Calif., assignor to Rohr Industries, Inc., Chula Vista, Calif.

Filed May 5, 1980, Ser. No. 146,509

Int. Cl.³ B64D *33/04*

U.S. Cl. 239—265.31 **5 Claims**



1. In a fan jet engine having a primary nozzle for the rearward passage of primary gases and a fan concentric therewith, thrust reverser mechanism comprising:

a cowl surrounding said fan and spaced from said primary nozzle to form a fan nozzle for the passage of fan gases, said cowl having a fixed forward section and a translatable aft section, when stowed the aft section forms with the fixed forward cowl section a continuous inner and outer flow surface and when the aft section is translated rearward to its deployed position an opening is provided between said cowl sections;

a pair of blocker doors are rotatably connected to said forward cowl section by translatable pivots;

bias means for biasing said pivots toward a maximum forward position;

link means pivotably attached between said blocker doors and the aft cowl section for rotating said blocker doors from a stowed position into the stream of said gases and redirecting their flow through said opening and translating said pivots to a maximum aft position against said bias

means when said aft cowl section is translated aft and allowing said bias means to return said pivots to a maximum forward position and then rotating said blocker doors out of the gas stream as said aft section is translated in a forward direction to its stowed position; and

means for translating said aft cowl section between stowed and deployed positions.

4,340,179

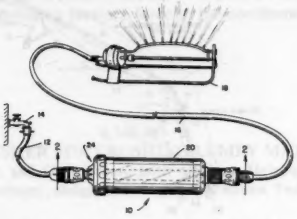
LAWN AND GARDEN FEEDING APPARATUS

Philip B. Knapp, 40 Reyam Rd., Lynbrook, N.Y. 11563

Filed Apr. 29, 1980, Ser. No. 144,851

Int. Cl.³ A62C *5/02*

U.S. Cl. 239—310 **12 Claims**



1. A lawn and garden feeding apparatus for use with a source of water and with water discharge means,

said feeding apparatus comprising

a container having a water inlet opening and a water outlet opening, means for connecting said inlet opening to said source of water, and means for connecting said outlet opening to said water discharge means,

a removable cartridge disposed within said container, said cartridge comprising a molded stable solid body of water insoluble but permeable hydrophilic gel containing a saturated solution of water soluble plant support reagent and a suspension of undissolved water soluble plant support reagent in solid form, and having a through unobstructed longitudinal bore communicating at one end with said inlet opening and at the other end with said outlet opening, whereby water flows through said longitudinal bore from said inlet opening to said outlet opening,

said gel being adapted to release minute amounts of said plant support reagent into the water flowing through said longitudinal bore.

4,340,180

NOZZLE MIXING LINE BURNER

James L. Belknap, Parker City, and William P. Coppin, Muncie, both of Ind., assignors to Maxon Corporation, Muncie, Ind.

Filed Dec. 3, 1980, Ser. No. 212,346

Int. Cl.³ B05B *7/08*

U.S. Cl. 239—422 **14 Claims**

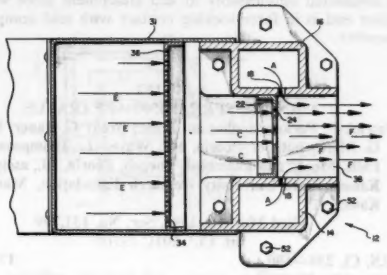
1. An improved nozzle mixing line burner for automatically increasing available oxygen for increased fuel gas flow rates, said burner comprising:

a pair of fuel gas manifolds oppositely disposed and in spaced relationship, each said fuel gas manifold extending longitudinally along the line of the burner, and each said fuel gas manifold having a plurality of fuel gas ports discharging laterally and toward the opposite manifold to provide streams of fuel gas;

means connected to said fuel gas manifolds for supplying a fuel gas thereto;

an orifice plate extending longitudinally along the line of the burner between said pair of fuel gas manifolds and upstream said fuel gas manifolds and having air orifices therein for providing streams of air transverse to said fuel gas streams directed laterally from said fuel gas manifold ports;

said air orifices comprising at least two rows of relatively smaller air orifices extending longitudinally along the line of the burner and relatively proximate each said fuel gas manifold, and further comprising at least one row of relatively larger air orifices longitudinally extending between said rows of relatively smaller air orifices,



whereby as the velocity of the fuel gas flow is increased the laterally and internally directed streams thereof extend to the vicinity of said relatively larger air orifices to provide proportionately increased oxygen for the combustion of the increased fuel gas flow.

4,340,181

FUEL INJECTION NOZZLE FOR INTERNAL COMBUSTION ENGINES

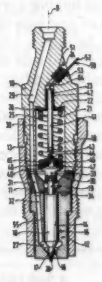
Gerhard Stumpp; Ewald Eblen, both of Stuttgart; Karl Hofmann, Remseck; Nestor R. Amaya, Stuttgart; Josef Schlagenhauf, Esslingen, and Odon Kopse, Stuttgart, all of Fed. Rep. of Germany, assignors to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

Filed May 13, 1980, Ser. No. 149,365

Claims priority, application Fed. Rep. of Germany, Jun. 22, 1979, 2925187

Int. Cl.³ B05B *1/32*

U.S. Cl. 239—533.3 **10 Claims**



1. A fuel injection nozzle for internal combustion engines having a valve seat in a nozzle body of electrically conductive material, a valve needle of electrically conductive material arranged to be lifted from the valve seat as a result of the pressure of the fuel and counter to the force of a first compression spring said valve seat forming an electric switch with said valve needle; a compression member arranged between the compression spring and said valve needle and held against said valve needle by a compression force of said first compression spring, a bore in said nozzle body, a spring-elastic conductive element coaxially disposed within said compression spring and

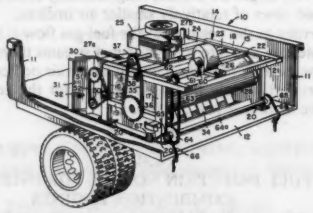
conductively connected to said compression member and said valve needle through said compression member, an insulated electrical attachment piece secured in said bore and conductively connected to said spring-elastic conductive element, characterized in that the connection of said spring-elastic conductive element to said valve needle forms an axially spring-elastic conductive element inside said compression spring and that said spring-elastic conductive element has one end which is connected unreleasably to said attachment piece while an other end is in force-locking contact with said compression member.

4,340,182

MANURE SPREADING APPARATUS

Patrick P. Parke, Manhattan, Kans.; Brady G. Bauer; Kenneth G. Meitl, both of Peoria, Ill.; Wayne L. Thompson, Great Falls, Mont., and Thomas J. Voegeli, Peoria, Ill., assignors to Kansas State University Research Foundation, Manhattan, Kans.

Filed Mar. 19, 1980, Ser. No. 131,799
Int. Cl.[3] A01C *19/00*
U.S. Cl. 239—680 **17 Claims**



1. A manure spreading apparatus comprising a frame adapted to be movably supported upon the bed of a truck for forward and rearward movement between the front and rear ends of such bed; driving means for progressively and selectively moving said apparatus forwardly and rearwardly upon such bed; an impeller assembly comprising an impeller having a transverse horizontal shaft rotatably mounted upon said frame and a plurality of impeller blades fixed to said shaft, and power means for rotating said impeller; top and side shields secured to said frame about said impeller to define an impeller chamber; said top shield having a transverse front edge spaced above the lower limits of said side shields to define an entrance to said chamber and having a transverse rear edge spaced above the lower limits of said side shields to define a discharge opening for said chamber; feeding means supported by said frame in front of said impeller for feeding manure into the entrance for said chamber when said apparatus is moved forwardly into engagement with a load of manure disposed on said bed; and a deflector plate spaced beneath the rear edge of said top shield and extending rearwardly and upwardly from beneath said impeller for directing manure contacted by the blades of said impeller upwardly and rearwardly through said discharge opening.

4,340,183

CORNER SYSTEM ADDITION FOR A CENTER PIVOT IRRIGATION SYSTEM

Richard L. Kegel, Bellevue; Burton J. Pugh, Ellensburg, and Thomas R. Steury, Bellevue, all of Wash., assignors to Sargent Mfg. Co., Inc., Othello, Wash.

Filed May 16, 1980, Ser. No. 150,554
Int. Cl.[3] B05B *3/12*
U.S. Cl. 239—710 **26 Claims**

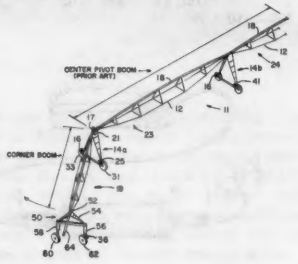
2. An apparatus which is useful with an irrigation system having a center pivot boom which includes a primary water conduit and which in operation moves about a center pivot point, the center pivot boom being divided into a plurality of sections which pivot relative to each other, the apparatus comprising:

corner boom means, which includes a secondary water conduit, joined to the outermost end of said center pivot boom in a pivoting relationship thereto;

means supporting said corner boom means;

means for moving said supporting means and hence said corner boom means about the outermost end of said center pivot boom in response to a signal command;

first means for determining the angle between (a) an imaginary reference line, which is a straight line connecting the



center pivot point and the outermost end of the center pivot boom, and (b) a fixed reference line having a known position relative to the irrigation area over which the center pivot boom moves;

second means for determining the angle of said corner boom means relative to the imaginary reference line;

means using the information from said first and second angle determining means to determine the position of said corner boom means relative to the irrigation area; and

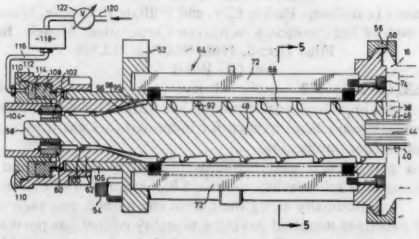
means supplying signal commands to said moving means when said corner boom means is in a selected position relative to the irrigation area.

4,340,184

APPARATUS FOR MECHANICAL SEPARATION OF A COMBINATION OF MEAT AND BONE INTO USEFUL FRACTIONS

Werner Poss, Oakville, Canada, assignor to Poss Design Limited, Hamilton, Canada

Filed Dec. 3, 1979, Ser. No. 99,350
Int. Cl.[3] A22C *17/00*; B02C *23/16*
U.S. Cl. 241—82.3 **8 Claims**



1. Apparatus for the mechanical separation of meat and bone into separate fractions thereof comprising:

(a) a cylindrical conduit having an inlet end and an outlet end and containing a feed screw rotatable about a longitudinal axis,

(b) the feed screw comprising a plurality of successive lands and upon rotation about its axis moving a meat and bone

combination to be separated along the conduit from the inlet to the outlet end and applying radially outwardly operative pressure to the combination pressing it against the conduit wall,

(c) at least part of the conduit wall comprising a separator screen whereby the pressure of the combination against the screen part forces the meat fraction through the screen while the bone fraction is retained thereby and moved through the conduit to the outlet end,

(d) the said feed screw being of circular transverse cross-section with the centre of the cross-section displaced from the longitudinal axis about which the screw rotates, the said cross-section centre describing a helical path about the said longitudinal axis along the length of the screw so that the said rotation of the screw applies a radially outwardly pulsating pressure force to the combination.

4,340,185

ROLL CRUSHER FOR CRUSHING LUMPY MATERIAL

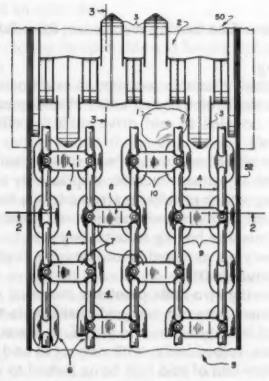
Ernst Braun, and Gert Braun, both of Essen-Heisingen, Fed. Rep. of Germany, assignors to Halbach & Braun, Fed. Rep. of Germany

Filed Mar. 17, 1980, Ser. No. 131,127

Claims priority, application Fed. Rep. of Germany, Mar. 31, 1979, 2912979

Int. Cl.³ B02C *13/286*

U.S. Cl. 241—186 R **8 Claims**



1. A single-roll crusher for fragmenting coarse-grained material, particularly coal and other minerals, comprising a housing, a shaft mounted to said housing for rotation, striking tools mounted on said shaft for rotation therewith through a path of rotary motion, a conveyor trough having a crusher plate extended at a predetermined distance vertically below said striking tools, a chain mesh mat mounted intermediate said crusher plate and said striking tools, said chain mesh mat comprising a multiplicity of chain strands extending side by side and horizontally spaced from each other by a predetermined lateral distance not greater than a desired maximum grain size, and pushers connecting adjacent chain strand, each of said chain strands comprising interconnected links alternate ones of which are vertical and horizontal, said chain mesh mat being aligned with the path of rotary motion of respective striking tools so that the tools project and rotate centrally between adjacent chain strands, and each of said pushers having in the zone between adjacent chain strands a trough-like recess having a depth extending below the top of said vertical chain links.

4,340,186

FLYER-TYPE COIL WINDING MACHINE

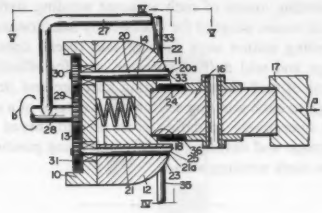
Sachio Shimada, and Yoshiaki Ohwada, both of Yokohama, Japan, assignors to Sony Corporation, Tokyo, Japan

Filed Nov. 21, 1979, Ser. No. 96,480

Claims priority, application Japan, Nov. 30, 1978, 53/148420

Int. Cl.³ H02K *15/09*

U.S. Cl. 242—7.05 B **11 Claims**



1. A winding machine for winding a filament into a coil comprising:

flyer means orbiting about an axis of said coil for paying out said filament;

at least one forming member having a guide surface for guiding said filament from said flyer means to said coil;

catching means associated with said at least one forming member and being movable in respect to the latter between a retracted position and a projecting position in respect to said guide surface; and

actuating means for said catching means synchronized with the orbiting of said flyer means to dispose said catching means in said projecting position for catching said filament during a first substantial portion of each orbit of said flyer means and to dispose said catching means in said retracted position for releasing said filament to slide along said guide surface during a second substantial portion of each said orbit of said flyer means.

4,340,187

BOBBIN CHANGING APPARATUS

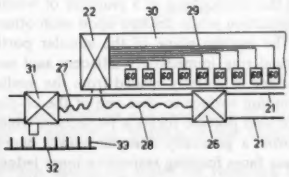
Heinz Schippers, Remscheid; Norbert Hufer, Radevormwald; Gerd Münnekehoff, Remscheid, and Udo Teich, Sprockhövel, all of Fed. Rep. of Germany, assignors to Barmag Barmer Maschinenfabrik, Remscheid, Fed. Rep. of Germany

Filed Sep. 26, 1980, Ser. No. 191,350

Claims priority, application Fed. Rep. of Germany, Sep. 29, 1979, 2939675

Int. Cl.³ B65H *54/26, 67/04*

U.S. Cl. 242—35.5 A **18 Claims**



1. A bobbin changing apparatus adapted for use with a textile yarn processing machine having a plurality of yarn winding stations aligned along at least one side thereof and with the winding stations each having a bobbin mounting means, said apparatus comprising

trackway means adapted to be disposed along at least said one side of said textile yarn processing machine,

a thread operating carriage mounted for movement along said trackway means and to a position adjacent each wind-

ing station, and including means for severing and withdrawing the yarn being processed at an adjacent winding station, and for returning the yarn to its winding path when an empty bobbin has been positioned on the mounting means of such winding station, and

a doffing carriage mounted for movement along said trackway means independently of said thread operating carriage and to a position adjacent each winding station, and including means for receiving a full bobbin from the mounting means of such adjacent winding station, and

control means adapted for operatively interconnecting each winding station with each of said thread operating carriage and said doffing carriage, and for effecting movement of said thread operating carriage and doffing carriage to each winding station upon receipt of a signal, and for operatively actuating each of said thread operating carriage and doffing carriage upon being positioned adjacent such winding station.

4,340,188

WINDING HUB FOR MATERIALS IN STRIP FORM

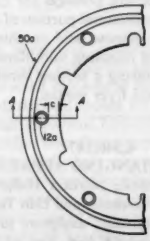
Walter Derendorf, Heidelberg, and Manfred Huber, Oberkirch, both of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Fed. Rep. of Germany

Continuation of Ser. No. 20,459, Mar. 14, 1979, abandoned. This application Oct. 1, 1980, Ser. No. 192,700

Claims priority, application Fed. Rep. of Germany, Apr. 6, 1978, 7810193[U]

Int. Cl.³ B65H *75/18*

U.S. Cl. 242—68.5 **4 Claims**



1. An annular flangeless winding hub for magnetic tape, comprising a substantially cylindrical ring having an outer peripheral surface, an inner peripheral surface, and lateral surfaces, the outer peripheral surface serving as the winding surface for the tape and the lateral surfaces being configured to provide for the interlocking of a plurality of winding hubs of similar construction when stacked upon each other,

wherein the median plane of the annular portion of said cylindrical ring immediately adjacent said inner peripheral surface is laterally spaced from the median plane of said winding surface so that one of the co-planar lateral faces of said portion forms a projection while the other face forms a generally complementary depression, said co-planar faces forming respective inner ledges estending flat over their entire circumference in planes parallel to said median planes, to facilitate the mounting of said winding hub for rotation and said projection on one winding hub cooperating with said depression on another winding hub to provide for said interlocking when said hubs are stacked one upon the other, and

wherein in the radially outer regions of said portion protrusions and recesses are provided to prevent the rotation of two or more stacked winding hubs relatively to each other.

4,340,189

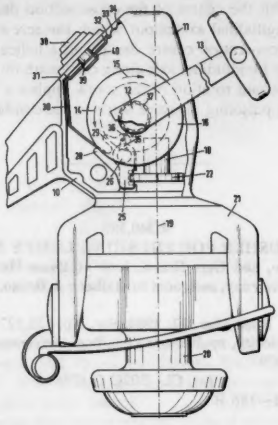
RETURN FEED LOCKING MECHANISM FOR FISHING REELS

Bernd Volkert, and Klaus Dörbandt, both of Berlin, Fed. Rep. of Germany, assignors to Deutsche Angelgerate Manufaktur (DAM) Hellmuth Kuntze Gesellschaft & Co. KG, Berlin, Fed. Rep. of Germany

Filed Apr. 14, 1981, Ser. No. 254,031

Int. Cl.³ A01K *89/02*; F16D *63/00*

U.S. Cl. 242—84.1 R **3 Claims**



1. A return feed locking mechanism for a fishing reel, comprising:

a housing;

a drive shaft rotatably mounted in said housing;

a driven shaft rotatably mounted in said housing and operatively coupled to said drive shaft for effecting rotation thereof;

a ratchet wheel mounted on said driven shaft;

a resilient adjustment member displaceably mounted in said housing which member is arrestable in a first end position, a central position, and a second end position, said adjustment member having an actuating arm;

a stationary pin mounted in said housing disposed parallel to said drive shaft;

a bolt having two ends pivotably mounted on said pin for movement between two end positions in which one end thereof is moved into, and out of, an arresting and release position, respectively, with respect to said ratchet wheel, the other end of said bolt being forked to define a pair of spaced-apart shanks between which said actuating arm of said adjustment member engages, said shanks defining a width therebetween which is about at least equal to the path of said actuating arm as it moves away from said pin and toward said drive shaft during movement of said adjustment member between said end positions thereof, said bolt also having a slot formed therein disposed between said pin and said drive shaft;

a spring ring frictionally mounted on said drive shaft having a bent end which engages said slot of said bolt when said drive shaft is rotated in a reeling-in direction and which has a spring force which is lower than that of said resilient adjustment member; and

wherein in the first end position of said adjustment member, said adjustment member pushes the bolt into its arresting end position due to its spring force, wherein in the center position of the adjustment member, said adjustment member is free from tension and said spring ring pushes said bolt into said release end position thereof when said drive shaft is rotated in a reeling-in direction and into the arresting position thereof when said drive shaft is rotated in a

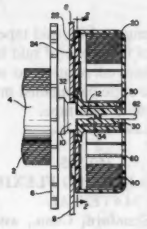
line-releasing direction and wherein in the second end position of said adjustment member, said adjustment member acts on the other shank of said fork due to its spring force, and pushes the bolt into the release position, whereby the spring force of the spring ring is overcome during such releasing movement.

4,340,190

SEAT BELT RETRACTOR SPRING ASSEMBLY

Robert J. Zavatkay, Torrington, Conn., assignor to Barnes Group Inc., Bristol, Conn.

Filed May 20, 1980, Ser. No. 151,614
Int. Cl.³ A62B *35/00*; B65H *75/48*
U.S. Cl. 242—107 **1 Claim**



1. A spring operated seat belt retractor device, comprising:
(a) a frame,
(b) a casing adapted to be connected to the frame and comprising:
(i) a cylindrical cup having a peripheral wall, a bottom wall and an open side,
(ii) a substantially planar cover connected to the cup and entirely closing its open side and having outer and inner surfaces,
(c) a shaft rotatably mounted concentrically within the casing with its one end within and closely adjacent the bottom wall of the cup,
(d) a spiral spring within the casing having its ends connected to the periphery of the cup and to the shaft, and
(e) means for releasably locking the spring to the casing in any predetermined prewound condition, comprising:
(i) spaced holes in the bottom wall of the cup which are positioned on opposite sides of the position of the axis of the shaft,
(ii) spaced elongated holes in the shaft extending from the said one end surface of the shaft in the direction of the axis of the shaft and being spaced equally to the holes in the bottom wall of the cup and being so positioned that they may be aligned with the holes in the bottom wall of the cup on rotation of the shaft with respect to the casing, and
(iii) a U-shaped wire clip the legs of which are spaced equally to the spacing of the holes in the bottom wall of the cup and the holes in the shaft, said clip being positioned with its legs within the holes in the bottom wall of the cup and the holes in the shaft thereby to releasably connect the shaft to the casing.

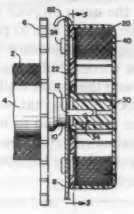
4,340,191

SEAT BELT RETRACTOR SPRING ASSEMBLY

Robert J. Zavatkay, Torrington, Conn., assignor to Barnes Group Inc., Bristol, Conn.

Filed Sep. 26, 1980, Ser. No. 190,977
Int. Cl.³ A62B *35/00*; B65H *75/48*
U.S. Cl. 242—107 **1 Claim**

1. A spring operated seat belt retractor device, comprising:
(a) a frame,
(b) a casing adapted to be connected to the frame and comprising:
i. a cylindrical cup, and
ii. a substantially planar cover connected to the cup and closing it and having a central opening therein,
(c) a shaft rotatably mounted in the opening in the cover,
(d) a spiral spring within the casing having its ends connected to the periphery of the cup and to the shaft, and
(e) means for releasably locking the spring to the casing in any predetermined prewound condition, comprising:
i. a passage formed in the general plane of the cover having an opening in the periphery of the cover,



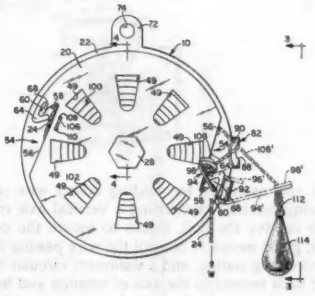
ii. a passage formed in the shaft in the plane of the cover,
iii. the passages in the cover and shaft being positioned to be longitudinally aligned on rotation of the shaft, and
iv. a pin slidably mounted in the aligned passages with its outer end accessible from outside the periphery of the cover whereby when the casing is connected to the frame the outer end of the pin may be manually grasped to insert the pin into the aligned openings to lock the shaft to the casing or withdrawn to release the shaft from the casing.

4,340,192

REEL FOR ANCHORING WILD FOWL DECOYS

James O. Burris, III, 251 Clark, Clarksdale, Miss. 38614

Filed Mar. 14, 1980, Ser. No. 130,252
Int. Cl.³ B65H *75/48*
U.S. Cl. 242—107.6 **9 Claims**



1. A reel for the winding and unwinding of cord about the reel, for use in anchoring floating animal decoys, the reel comprising:
(a) a first hub having an eyelet for receiving cord therethrough;
(b) a second hub mounted to rotate relative to the first hub;
(c) means for biasing the second hub rotatably relative to the first hub;
(d) a spool-like support structure located between the first and second hubs for mounting a wound cord, said spool-like structure connected to the second hub to rotate therewith;
(e) a lock pin pivotally mounted to the first hub to pivot

about its axis in a plane substantially co-planar with the plane of the first hub, so that the pin can pivot towards the second hub for engagement with the second hub, and pivot away from the second hub, the lock pin having a loop for receiving the cord which extends from the eyelet with the pin extending across the spool-like structure when the pin is engaged to the second hub; and

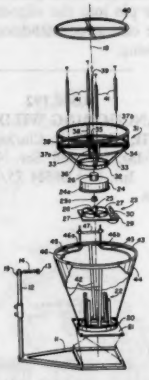
(f) means for locking the first hub to the second hub with the lock pin, comprising: the second hub having an outer edge, the second hub having a notch with a wall extending inwardly from the second hub outer edge so that the notch opens towards the outer edge of the second hub; and a tab projecting from the outer edge of the second hub towards the interior of the second hub to partially block the notch opening with the tab projecting in a direction from the outer edge of the second hub into the notch to form a slot between the tab and the notch wall, said slot sized to allow passage of the lock pin, so that when the lock pin is pivoted towards the second hub to be positioned within the notch to lock against rotary movement of the second hub relative to the first hub, the tab obstructs movement of the pin out of the notch.

4,340,193

VARIABLE CAPACITY FEED REEL FOR COILED WIRE

George E. Zitzman, 131 Tanners Pond Rd., Garden City, N.Y. 11530

Filed Jul. 24, 1980, Ser. No. 171,663
Int. Cl.[3] B65H *49/00*
U.S. Cl. 242—129.72 8 Claims



1. A reel assembly for feeding coiled wire material to a processing machine comprising a vertical axis rotatable support to receive the coil, means to secure the coil coaxially therein, guide means to control the wire passing from the coil to a processing station, and a stationary circular housing concentric with respect to the axis of rotation and having downwardly converging walls to define a section of an inverted cone having an upper portion containing the rotatable support.

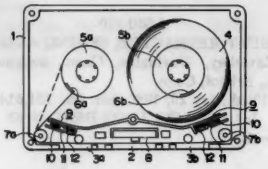
4,340,194

TAPE CASSETTE

Sinichi Saitou, Hachioji, Japan, assignor to Olympus Optical Co., Ltd., Tokyo, Japan

Filed Aug. 6, 1980, Ser. No. 175,712
Claims priority, application Japan, Aug. 7, 1979, 54-108708[U]
Int. Cl.[3] G03B *1/04;* G11B *15/32, 23/04*
U.S. Cl. 242—199 5 Claims

1. A tape cassette comprising: a window means for enabling operative engagement in said cassette of magnetic head means and capstan means; a pair of hubs arranged in said cassette; a tape wound between said hubs guided along said window means for operative engagement by said magnetic head means; and tape end detector means for detecting when unwinding of said tape from either of said hubs is completed; said tape end detector means comprising a fixed bar set in said cassette, a



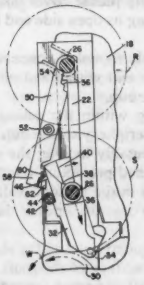
slide bar adapted to be engaged by said tape upon termination of the unwinding thereof from one of said hubs, said slide bar being thereby slidably moved relative to said fixed bar, and spring means urging said slide bar against movement imparted thereto by engagement with said tape.

4,340,195

DISPENSER FOR ROLLED FLEXIBLE SHEET MATERIAL

Raymond F. DeLuca, Stamford, Conn., assignor to Georgia-Pacific Corporation, Portland, Oreg.

Continuation-in-part of Ser. No. 58,867, Jul. 19, 1979, Pat. No. 4,307,639, which is a continuation of Ser. No. 897,431, Apr. 18, 1978, abandoned. This application Oct. 16, 1980, Ser. No. 197,524
Int. Cl.[3] B65H *19/04, 17/42*
U.S. Cl. 242—55.3 6 Claims



1. A dispenser for wound rolls of flexible sheet material that have supporting spindles projecting outwardly from the roll core ends comprising:

a dispenser housing to receive the rolls to be dispensed having inwardly facing tracks on the opposite inner sidewalls of said housing for the rolls to move downwardly within said housing along said tracks;

movably mounted roll driving guide means positioned adjacent the lower end of each said track, each said guide means providing a friction surface to engage the periphery of a source roll spindle within the track and promote source roll rotation during said downward movement of the roll;

means biasing each said guide means toward the center of the track with which it is associated;

a movably mounted reserve roll segregating device associated with each track having an upper portion to engage a reserve roll spindle within the track to retain the reserve roll adjacent the upper ends of said tracks, said device having a lower portion pressing against said guide means to augment said biasing means in urging said friction

surface against the periphery of the source roll spindle within the track; and

a feed roller rotatably mounted within said housing adjacent the lower ends of said tracks to drivingly engage with the periphery of the source roll.

4,340,196

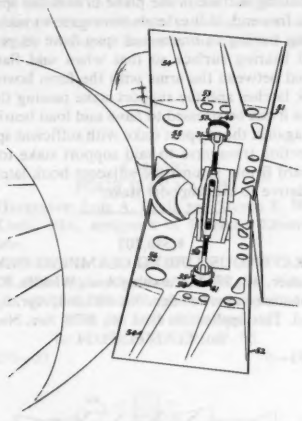
MAINTENANCE LOCK FOR AIRCRAFT SPEED BRAKE

Thomas W. Eldred, 298 6th St., Hill AFB, Utah 84056

Filed May 6, 1980, Ser. No. 147,426

Int. Cl.[3] B64D *47/00*

U.S. Cl. 244—1 R 2 Claims



1. A lock mechanism for holding open opposed upper and lower doors of an aircraft speed brake, said upper and lower doors each having a surface sheet and each having an internal stiffening structure with at least a lightening hole in said upper door stiffening structure opposed a lightening hole in said lower door stiffening structure, said lock mechanism comprising:

a. a turnbuckle type member having a first end with left-hand threads and a second end with right-hand threads;

b. a first yoke member threadably engaging in adjustable relationship said first end of said turnbuckle type member;

c. a first locking means cooperating with said first yoke member and said turnbuckle type member for locking the adjustment of said first yoke member with respect to said turnbuckle type member;

d. a second yoke member threadably engaging in adjustable relationship said second end of said turnbuckle type member;

e. a second locking means cooperating with said second yoke member and said turnbuckle type member for locking the adjustment of said yoke member with respect to said turnbuckle type member;

f. a first tubular member for engaging said upper door surface sheet and being of a size for receipt in said lightening hole in said upper door stiffening structure, said first tubular member also being pivotably attached to said first yoke member;

g. a second tubular member for engaging said lower door surface sheet and being of a size for receipt in said lightening hole in said lower door stiffening structure, said second tubular member also being pivotably attached to said second yoke member; and

h. a resilient covering extending over the surface of each of said first and second tubular members for contacting said surface sheet and said stiffening structure of said respective upper and lower speed brake doors through said respective lightening holes therein.

4,340,197

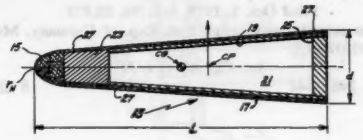
DECOY MISSILE

George S. Campbell, Storrs, Conn., assignor to The United States of America as represented by the Secretary of the Air Force, Washington, D.C.

Filed Feb. 15, 1966, Ser. No. 529,182

Int. Cl.[3] B64G *1/00*

U.S. Cl. 244—3.1 4 Claims



1. A decoy missile for simulating the characteristics of a ballistic missile nose cone during reentry into the earth's atmosphere, said decoy missile comprising a rounded nose portion having a hollow elongated body portion extending rearwardly therefrom, said decoy missile being symmetrical about its longitudinal axis, and means for reducing the natural oscillation frequency of said decoy, said means including a front ballast disposed in the forward section of said body portion immediately adjacent to said nose portion and a rear ballast disposed in the rearwardmost base section of said body portion, thereby providing a high moment of inertia and reducing the natural oscillation frequency of said decoy to match that of the ballistic missile nose cone.

4,340,198

STAND FOR A PROJECTION SCREEN

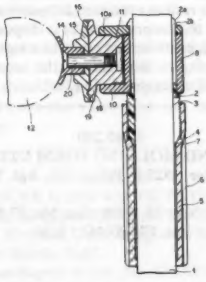
Helmut Meinunger, Radevormwald, Fed. Rep. of Germany, assignor to Mechanische Weberei GmbH, Bad Lippspringe, Fed. Rep. of Germany

Filed May 9, 1980, Ser. No. 148,123

Claims priority, application Fed. Rep. of Germany, May 11, 1979, 2919170

Int. Cl.[3] B61L *25/00*

U.S. Cl. 248—122 6 Claims



1. A projection screen assembly which comprises:

a post;

a holder mounted on said post and formed with a dovetail-like slot;

a head of generally dovetail-like profile removably receivable in said slot; and

a projection screen tube mounted on said head whereby said tube can be removed with said head from said post, said holder being mounted on a slotted sleeve, said slotted sleeve being provided with a male thread at one end having a frustoconical portion at said end, said assembly further comprising a locking sleeve having a female thread engageable with said male thread and a frustoconi-

cal portion adapted to clamp said slotted sleeve against said post, said sleeve surrounding said post and being slidable with said holders thereon.

4,340,199

HANGING DEVICE OR CATCH

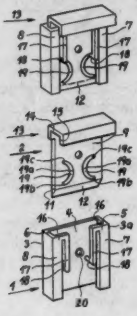
Rita Brock, 4815 Schloss-Holte, Stuckenbrock, Asterhweg 12, Fed. Rep. of Germany

Filed Oct. 1, 1979, Ser. No. 80,575

Claims priority, application Fed. Rep. of Germany, May 8, 1979, 7913186[U]

Int. Cl.³ A47G *1/16*

U.S. Cl. 248—544 **8 Claims**



1. Hanging device comprising at least two parts guided for displacement one on the other and made of spring-elastic plastic, having a first part (1) which includes at least one leaf spring (17) which is provided at its free end with a projection (18) for engagement in a guiding groove (19) which is disposed in a second part (2) at an angle to the leaf spring, the guiding groove (19) being curved and forming an arc of a circle, said arc having an apex and two end portions; said second part (2) further comprises a base plate (9) in which the guiding grooves (19) and an elongated hole (20*a*) are disposed and which is provided with a fastening means (14, 15) having a hooked portion with a lip (15), said hooked portion lying outside of the first part (1), and a resilient tongue (24) protruding at an angle from the plane of the second part (2) is disposed opposite the lip (15) of the hook portion; said resilient tongue (24) is formed on a shank (26) lying in the plane of the second part (2) and extending into said elongated hole (20*a*).

4,340,200

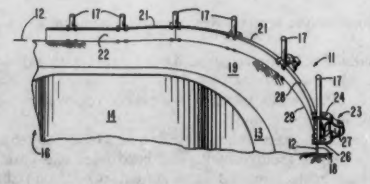
SPRING CLIP AND MOLDING FORM UTILIZING SAME

William J. Stegmeier, 2525 E. Prince Rd., Apt. 72, Tuscon, Ariz. 85716

Filed Nov. 26, 1979, Ser. No. 97,375

Int. Cl.³ E04G *17/00*

U.S. Cl. 249—3 **22 Claims**



1. A spring clip for holding a form board in position relative to a support stake comprising:

a pair of spaced flat arms, each arm having a free end and an opposite end and defining an aperture in the plane of said arm proximate said free end, the apertures of the arms in registration and of a size to allow the support stake to pass through the pair of arms;

a hook latch at the free end of each arm for holding the form board;

a web joined to the opposite ends of the pair of arms to join them together; and

a flat spring having at least one bend in its length the flat spring having one end pivotally mounted to the arms proximate the web and extending to an opposite free end so that said flat spring passes between the spaced arms and has a segment defining a load bearing surface in the plane of said flat spring passes between the spaced arms and has a segment defining a load bearing surface in the plane of said flat spring proximate the free end, that extends transverse to said arms, said flat spring having an unstressed span from its pivot end to the load bearing surface so that when said flat spring is positioned between the arms with the form board adjacent the hook latches and the support stake passing through the apertures it can be stressed to have said load bearing surface bearing against the support stake with sufficient spring force in a direction transverse to said support stake to hold said form board firmly against the adjacent hook latches and in place relative to said support stake.

4,340,201

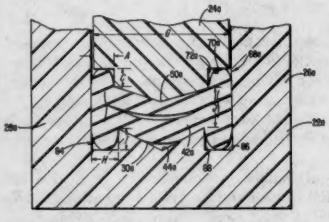
INTRAVENOUS TUBING CLAMPING DEVICE

Karl E. Becker, Jr., 275 S. Pershing Ave., Wichita, Kans. 67218

Continuation-in-part of Ser. No. 893,263, Apr. 5, 1978, abandoned. This application Dec. 10, 1979, Ser. No. 102,112

Int. Cl.³ F16L *55/14*

U.S. Cl. 251—6 **25 Claims**



1. An intravenous tubing clamping device for controlling fluid flow through compressible tubing comprising:

an elongated body member adapted to receive said tubing having a proximal end and a distal end;

said body member including a generally V-shaped bottom wall defining two planar supporting surfaces for said tubing extending longitudinally of said body member and having a substantially constant width and an apex angle of about 60° to 165°; and

a roller mounted on said body member for movement longitudinally of said body member about an axis of rotation extending transversely of said body member for defining a clamping area between said roller and said supporting surfaces which decreases the cross-sectional area of the lumen of the tubing as said roller moves from said proximal end of said body member toward said distal end, said roller defining grooves extending circumferentially around opposite sides of the outer circumference of said roller, said roller grooves defining spaces adapted to receive the sides of a tubing clamped in said clamping area, said roller grooves being defined by (1) walls on said body member extending substantially parallel to said longitudinal roller movement on opposite sides of said roller, (2) first surfaces formed circumferentially on said roller adjacent to and on opposite sides of said clamping area and (3) second surfaces formed circumferentially on said roller substantially perpendicular to said body member walls

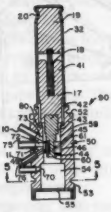
and each extending substantially parallel to said axis of rotation between a respective first surface and body member wall, said roller grooves cooperating with said body member to clamp the sides of said tubing in a direction transverse of said body member with said tubing being compressively engaged between said body member walls and said first surfaces and said tubing being positively engaged by said second surfaces so that a lumen is defined in a central portion of the tubing through which flows substantially all of the fluid, said roller having a circumference with a generally V-shape with the apex of the V-shape centrally located on the roller and its distal ends merging with said roller grooves, the apex having an angle of about 60° to 180°, the roller cooperating with the planar supporting surfaces of said body member to define a generally V-shaped lumen in the clamped tubing.

4,340,202

FOUR WAY VALVE

David P. Hargraves; Jude A. Pauli, and Steven E. Williams, all of St. Louis, Mo., assignors to Emerson Electric Co., St. Louis, Mo.

Continuation of Ser. No. 840,299, Oct. 7, 1977, Pat. No. 4,202,373. This application Jan. 4, 1980, Ser. No. 109,673
The portion of the term of this patent subsequent to May 13, 1997, has been disclaimed.
Int. Cl.³ F16K *11/06, 31/06*
U.S. Cl. 251—31 **7 Claims**



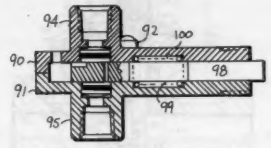
1. In a valve assembly for a system employing relatively high pressure, the valve assembly having a main valve housing, a main valve member movable in said valve housing, said valve member having ends which cooperate with said housing to define a pair of opposed chambers in said housing, and a pilot control system for alternating the application of high pressure to the opposed chambers in said housing to position said main valve member, said pilot control system including a pilot body mounted to said valve housing and a solenoid actuated mechanism having a plunger mounted for movement in a first direction with respect to said pilot body, the improvement comprising a pilot slide intermounted with said plunger for movement in said first direction and being loosely movable with respect to said plunger to permit at least relative reciprocal movement in a second direction between said slide and said plunger, said relative reciprocal movement enabling said slide to compensate for part assembly tolerances in the manufacture of said valve, and means for applying the high pressure of said system to said pilot slide to maintain the position of said pilot slide with respect to said plunger along with relative reciprocal movement direction, said high pressure being the sole means for biasing said pilot slide so as to position the pilot slide with respect to said plunger along said relative reciprocal movement direction regardless of the movement of said plunger in said first direction.

4,340,203

THREE WAY SLIDE VALVE WITH CENTER RETURN

Verne P. Donner, Palatine, Ill., assignor to Deltrol Corp., Bellwood, Ill.

Filed Oct. 14, 1980, Ser. No. 196,372
Int. Cl.³ F16K *3/02*; F15B *13/04*
U.S. Cl. 251—322 **6 Claims**



1. In a valve mechanism, a valve housing formed of two moulded housing parts joined together, said housing parts defining a slide valve chamber, a slide valve member in said chamber, operating means for the slide valve member extending through one end of said housing, a threaded mounting stud for the housing through which said operating means extends, a portion of said stud being formed on one housing part and another portion of the stud being formed on the other housing part, said housing parts being separable and joined together after installation of the slide valve member.

4. In a valve mechanism, a valve housing having a slide valve chamber and an adjoining spring chamber of larger cross-section than the slide valve chamber providing a shoulder at the junction of the spring chamber with the slide valve chamber, slide valve member means movably mounted in the slide valve chamber and having a rectangular portion adjacent to the spring chamber, said valve housing being formed of two parts contacting opposite faces of the slide valve member means, said housing parts having elongated mating surfaces and cooperating to form the slide valve chamber said valve housing being formed with at least one valve port controlled by the slide valve member means, said valve housing also being formed with an opening at one end leading from the slide valve chamber to the outside of the housing, and the slide valve member means including operating means passing through said opening for operating the slide valve member means from outside the housing, spring means in the spring chamber arranged to engage the rectangular portion of the slide valve member means and said shoulder, said spring means urging the slide valve means in a predetermined direction and being stopped by the shoulder, said spring chamber being located in the housing between the valve port and the opening for the operating means.

4,340,204

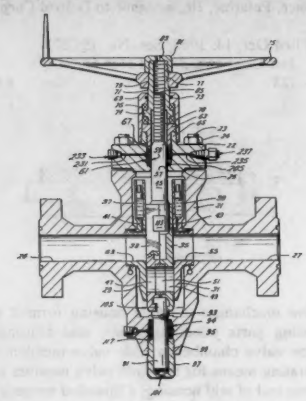
HIGH PRESSURE GATE VALVE WITH PRELOADED, STACKED, SOLID LUBRICATED STEM SEALS

David P. Herd, Houston, Tex., assignor to Smith International, Inc., Newport Beach, Calif.

Continuation-in-part of Ser. No. 655,693, Feb. 6, 1976, abandoned. This application Sep. 15, 1977, Ser. No. 833,684
Int. Cl.³ F16K *41/04*; B65D *53/02*
U.S. Cl. 251—327 **12 Claims**

1. A valve including a hollow body having a flow path therethrough and a port, stem gate means in the body moving to control fluid flow through the body and including an actuator and a stem extending through the port in the body from the inside thereof, there being an annular stuffing box in the body around the stem, stem seal means in the stuffing box, and a packing gland engageable with the stem seal means for compressing the stem seal means, the stem seal means including at least one seal assembly having four metal back-up rings and one seal ring, the seal ring having grooves on its outer periphery adjacent to each of the metal back-up rings and the seal

ring being made of a more compliant material than the metal back-up rings, the stem seal means further including a second



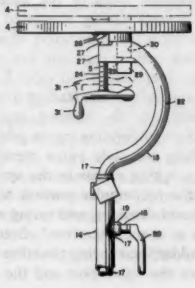
seal assembly and a first metal ring, the metal ring being sandwiched between the first and second seal assemblies.

4,340,205

LIFTING JACK

Max L. Leezer, 615 N. G. St., Monmouth, Ill. 61462

Filed Jun. 24, 1980, Ser. No. 162,527
Int. Cl.³ E04G *1/00*
U.S. Cl. 254—98 **7 Claims**



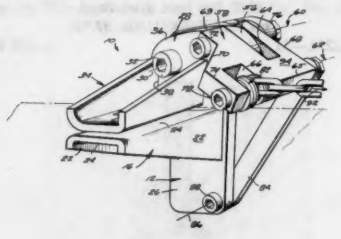
1. A lifting jack comprising
a. a base,
b. an elongated standard having
(1) an elongated, substantially straight, tubular lower end portion,
(2) an elongated, upper end portion having a lower end slidably mounted in the upper end of said lower end portion for vertical adjustment of said upper end portion relative to said lower end portion, and
(3) an abutment member threaded into said lower end portion and abuttingly engaged with said upper end portion for holding said upper and lower end portions in vertically adjusted position to each other,
c. said upper end portion also having
(1) an upper end, and
(2) an intermediate portion disposed between said upper and lower ends of said upper end portion and curved arcuately and offset laterally from said upper end and said lower end,
d. an elongated feed screw extending through said upper end of said upper end portion,
e. said feed screw having
(1) an upper end disposed above said upper end of said upper end portion,
(2) a lower end disposed below said upper end of said upper end portion, and
(3) an intermediate portion
(a) disposed between said upper and lower ends thereof, and
(b) threadedly engaged with said upper end of said upper end portion,
f. a platform mounted on and rotatably connected to said upper end of said feed screw, and
g. means on said lower end of said feed screw for rotating said feed screw relative to said upper end of said upper end portion and within said curved arcuately intermediate portion and thereby moving said feed screw and platform relative to said standard, and
h. said feed screw, said upper and lower ends of said upper end portion, and said lower end portion being disposed in substantially axial alignment therewith.

4,340,206

CLAMP FOR REPAIR OF SEPARATION IN CONVEYOR BELT

Howard P. McJunkin, Jr., Charleston, W. Va., assignor to McJunkin Corporation, Charleston, W. Va.

Filed Oct. 20, 1980, Ser. No. 198,810
Int. Cl.³ B25B *25/00*
U.S. Cl. 254—199 **5 Claims**



1. In a self-setting belt repair edge clamp of the type having a first jaw fixed on a bracket, a second jaw fixed on a crank link, there being means pivotally securing the second jaw on the bracket, and a pair of operator links having proximal ends pivotally secured together on an anchor point axis, with the distal end of one being pivotally secured to the bracket and the distal end of the other being pivotally secured to the crank link with such an offset from where the second jaw is pivotally secured to the bracket, that when a pulling force is applied to the anchor point axis in a sense to pull the anchor point axis away from the bracket, the second jaw is moved into confronting, clamping relation with the first jaw so that a thickness of conveyor belt or the like inserted between the jaws prior to exertion of said pulling force becomes clamped tightly between the jaws,
the improvement wherein:
said jaws are extensive laterally of the bracket so as to provide a clamping footprint of substantial width;
said other operator link extending laterally in a substantial distance and including an anchor point constructed and arranged for the attachment for means for exerting said pulling force, and anchor point being disposed substantially laterally midway along said jaws, so that said pulling force may be exerted effectively centrally of the clamping footprint; and
said other operator link including a guide slot and said crank link includes a lobe snuggly received in the guide slot when the second jaw is in confronting clamping relation

with the first jaw, for lobe-in-slot cooperation to prevent bending of the clamp as said pulling force is exerted.

4,340,207

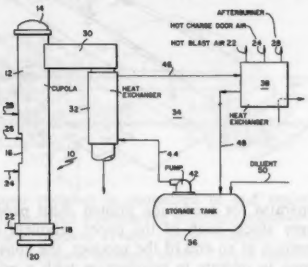
WASTE HEAT RECOVERY APPARATUS

Alfred Bruhn, East Chester, N.Y., and William Bernard, Winnetka, Ill., assignors to Dravo Corporation, Pittsburgh, Pa.

Continuation-in-part of Ser. No. 768,087, Feb. 14, 1977, abandoned. This application Dec. 3, 1979, Ser. No. 99,336

Int. Cl.³ F27B *1/22*

U.S. Cl. 266—155 **4 Claims**



1. An apparatus for recovering heat from an exhaust gas having a temperature of about 500° to 2500° F. produced during the operation of a cupola cycling between a melt mode and an idling mode which comprises:

a first heat exchanger means for passing said exhaust gas in indirect heat transfer relationship to an intermediate heat transfer medium to thereby cool said exhaust gas and heat said heat transfer medium;

a second heat exchanger means for passing at least a portion of said heated heat transfer medium in indirect heat transfer relationship to an air stream, said second heat exchanger including pipe means for passing said preheated air stream to said cupola as combustion air, blast air, and charge door air;

a first conduit means for passing said heated heat transfer medium from said first heat exchanger means to said second heat exchanger means;

a storage zone for receiving heat transfer medium from said second heat exchanger means and for passing heat transfer medium to said first heat exchanger means;

a second conduit means for passing said heat transfer medium from said second heat exchanger means to said storage zone;

a third conduit means for passing heat transfer medium to said first heat exchanger means from said storage zone; and

pump means for passing said heat transfer medium through said heat exchanger means and said storage zone.

4,340,208

REFRACTORY PIECE PERMEABLE TO GASES

Pierre Vayssiere; Charles Roederer; Jean-Claude Grosjean; Roland Grave, all of, Metz, France; F. Schleimer; F. Goedert, both of, Dudelange, Luxembourg; R. Henrion, Esch, Luxembourg; L. Lorang, Differdange, Luxembourg, and J. Colling, Luxembourg, Luxembourg, assignors to Institut de Recherches de la Siderurgie Francaise, Saint-Germain-en-Laye, France

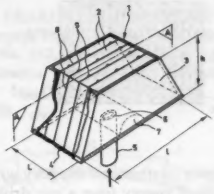
Filed Apr. 24, 1980, Ser. No. 143,306

Claims priority, application France, Apr. 25, 1979, 79 10445; Luxembourg, Apr. 30, 1979, 81208; France, Feb. 8, 1980, 80 02905

Int. Cl.³ C21C *5/48*

U.S. Cl. 266—220 **27 Claims**

1. For use in a metallurgical container having an inner refractory lining and containing a bath of molten metal, a composite refractory member permeable to gas adapted to be incorporated in the refractory lining of the container below the surface of the bath so that one of the faces of the composite member is in contact with the molten metal, said composite refractory member consisting essentially of an assembly of



non-porous refractory elements juxtaposed without seals between the same in order to provide a plurality of discontinuities extending throughout the height of the composite member between the face in contact with the molten metal and an opposite face; and means for feeding a gas under pressure against said opposite face.

4,340,209

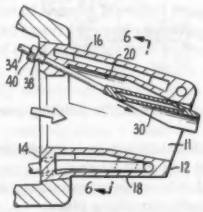
ADJUSTABLE TUYERE

David J. Abascal, Riverside, Calif., assignor to Kaiser Steel Corporation, Oakland, Calif.

Filed Apr. 13, 1981, Ser. No. 253,572

Int. Cl.³ C21B *7/16*

U.S. Cl. 266—266 **4 Claims**



1. A blast furnace tuyere assembly comprising, a tuyere of cast metal of high heat conductivity copper having communicating passages therein for circulating cooling liquids throughout the cast body, said tuyere having a generally frusto-conical shape and being adapted to be located within the walls of a blast furnace, said tuyere having a generally uniform internal diameter for the flow of hot blast gases there through except for a recessed portion in one arcuate area thereof which recessed out portion extends along the length of said tuyere, choke means having a generally flat longitudinal cross section conforming in contour to said recessed arcuate portion, and which when emplaced therein provides an internal passage of generally uniform diameter, said choke means being adjustable to move forward from said emplaced position, and having sufficient cross-section to narrow the width of the orifice diameter of said tuyere as it moves into the forward position.

4,340,210

PILE DRIVER CUSHION

Peter Townsend, Forked River, N.J., assignor to Metex Corporation, Edison, N.J.

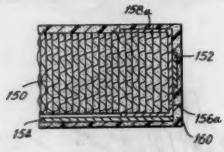
Filed Jan. 25, 1980, Ser. No. 115,342

Int. Cl.³ F16F *7/00*

U.S. Cl. 267—137 **4 Claims**

1. A pile driver cushion for effecting the controlled transfer energy from a pile driver ram to a pile during the operation of

a pile driver comprising a pad formed from knitted wire mesh compressed into a flexible strip of substantially uniform density wound upon itself into a spiral having a preselected diameter



and secured to retain its structural integrity while effecting the controlled transfer of energy from a pile driver ram to a pile during a pile driver operation.

4,340,211

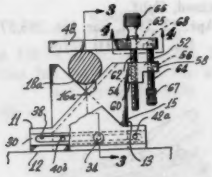
ADJUSTABLE VEE BLOCK CLAMP

Pietro Chiappetti, 5341 Hawley Ave., Los Angeles, Calif. 90042

Continuation-in-part of Ser. No. 19,094, Mar. 9, 1979, abandoned. This application Jul. 24, 1980, Ser. No. 171,727

Int. Cl.³ B25B *1/20, 1/24*

U.S. Cl. 269—110 **20 Claims**



1. Adjustable vee blocks for holding a workpiece comprising,

a central block extending in a longitudinal direction with forward and rear ends having,

flat, parallel side surfaces extending in a vertically and longitudinally extending plane,

a horizontal, longitudinally extending base edge,

a work supporting edge spaced above said base edge extending longitudinally in an upward and rearward direction,

a longitudinally extending horizontal slot adjacent and parallel to said base edge extending transversely through said central block;

two side blocks positioned on opposite sides of said central block, each said side block having,

a flat side surface in abutting contact with the adjacent side surface of said central block,

a horizontal, longitudinally extending base edge disposed in the same plane as the base of said central block,

a work engaging edge spaced above said base edge, said work engaging edge extending longitudinally in an upward and forward direction at an inclination generally opposed to the inclination of the work supporting edge of said central block to define a vee relative thereto;

said side blocks having transversely aligned bores therein aligned with the slot in said central block,

fastening means extending through said bores and said slot for releasably clamping said blocks together; and

tongue and groove sliding surfaces on said central block and each of said side blocks for preventing relative rotational motion of said blocks around said fastening means and for enabling relative sliding motion between said blocks in a longitudinal direction upon loosening of said fastening means.

4,340,212

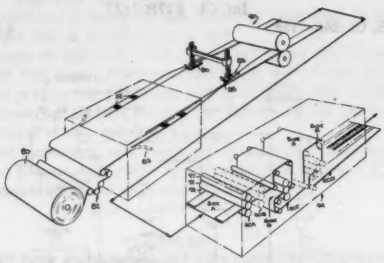
METHOD AND APPARATUS FOR PRODUCING SHEET-LIKE PRINTED PRODUCTS HAVING A FOLDED PORTION

Walter A. Simson, 230 Beverly Rd., Scarsdale, N.Y. 10583

Filed Sep. 24, 1979, Ser. No. 78,431

Int. Cl.³ B41F *13/58*

U.S. Cl. 270—5 **31 Claims**



1. Apparatus for producing printed sheet paper products from paper stock, each of the paper products including a folded portion at an end of the product, the apparatus being conditioned to operate in conjunction with a printing press utilizing opposed rotating cylindrical surfaces for printing on paper stock, the printing press in a direction transverse to a path of travel of paper stock through the printing press having a predetermined width which fixes the maximum width of paper stock that can be printed, the apparatus comprising:

means for folding at least one edge portion of paper stock having an original width greater than the predetermined width of the printing press along a fold line offset from the midpoint of the original width to provide folded paper stock of a folded width which is less than the predetermined width of the printing press with at least one folded edge portion overlying only a fraction of the remaining width of paper stock; and means for advancing the folded paper stock to the printing press for printing while the paper stock is folded with the at least one folded edge portion overlying only a fraction of the remaining width of paper stock.

21. A method for continuously producing printed sheet-like paper products each of which includes a folded portion at each end of the product utilizing printing apparatus having a predetermined width and which utilizes opposed rotating cylindrical surfaces for printing on paper stock, the method comprising the steps of:

providing paper stock having an original unfolded width which exceeds said predetermined width;

folding the edge portions of the paper stock along fold lines offset from the midpoint of the original unfolded width to provide folded paper stock having a folded width up to the predetermined width with each of the edge portions overlying only a fraction of the remaining width of paper stock; and

printing on selected portions of the folded paper stock including at least one edge portion and at least part of the unfolded width of the stock.

4,340,213

PRINT STACKING APPARATUS WITH PRINT DEFLECTING FLAP

Gerald A. Jensen, Plymouth, Minn., assignor to Pako Corporation, Minneapolis, Minn.

Filed Dec. 10, 1979, Ser. No. 101,477

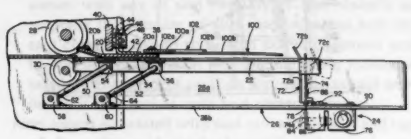
Int. Cl.³ B65H *31/10*

U.S. Cl. 271—219 **6 Claims**

1. In photographic print stacking apparatus having a discharge end from which photographic prints are discharged, the photographic prints having a leading edge and a trailing

edge and a front side edge and a rear side edge; first and second print receiving elements positioned proximate the discharge end to receive and hold the prints therebetween; and stop means for stopping prints as they are deposited between the first and second print receiving element, the stop means having an upper edge; the improvement comprising:

deflecting means for deflecting the leading edge of the photographic print toward a portion of the stop means below the upper edge and connected to the first print receiving element and extending generally parallel to and along a rear edge of the second print receiving element from the first print receiving element toward the stop means, wherein the deflecting means includes a stiffening member and a flapper member made of a flexible material, wherein



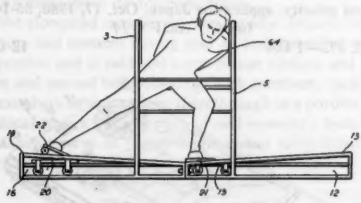
the flapper member is connected to and underlies the stiffening member wherein the stiffening member overlies a sufficient portion of the flapper member to provide sufficient structural strength to the flapper member while still permitting the flapper member to be sufficiently flexible to deflect the leading edge of the photographic print to cause the leading edge to be stopped by the portion of the stop means below the upper edge, wherein the stiffening and flapper members are positioned below the upper edge of the stop means, wherein both members have a narrow width that is sufficient to engage only the rear side edge of the photographic print, and wherein the second print receiving element moves away from the first print receiving element as additional prints are stacked between the first and second print receiving elements.

4,340,214

TRAINING APPARATUS FOR SKATERS

Björn E. Schützer, Morkullegatan 1, Askersund, Sweden (696 00)

Filed Jun. 13, 1980, Ser. No. 159,201
Claims priority, application Sweden, Jun. 18, 1979, 7905337
Int. Cl.³ A63B *23/04, 69/18*
U.S. Cl. 272—70 **9 Claims**



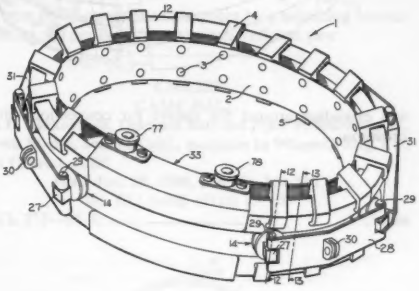
1. A training apparatus for skaters comprising stationary horizontal rail means extending laterally from each other and normal to the skating direction, separate carriage means displaceable along each of said rail means in opposite directions, a pair of foot plate means for receiving the skater's feet, each foot plate means having an inboard and outboard end and being hingedly mounted on one of said carriage means and movable therewith, and ramp means cooperating with said foot plate means for continually increasing the angle of inclination of the entire foot plate means with respect to the rail means upon displacement of the carriage means outwardly of its respective rail means, wherein the outboard end of the foot plate means moves upwardly with respect to the inboard end during said carriage displacement.

4,340,215

BEARING AND SUPPORT

Raymond J. Murphy, Rte. 2, Bonne Terre, Mo. 63020

Division of Ser. No. 842,532, Oct. 17, 1977, Pat. No. 4,204,719.
This application Mar. 28, 1980, Ser. No. 135,197
Int. Cl.³ A63B *69/00, 5/16*
U.S. Cl. 272—109 **31 Claims**



1. A bearing support for use by the gymnast comprising a structural member provided for embracing its user, said structural member being resilient in content and having upper and lower edges, a series of keepers provided spacedly around the proximate upper and lower edges of said structural member, a pair of races, one of each race being held by the keepers associated with the upper and lower member edges, at least a pair of bearings operatively associated with the races of said support, each bearing composing a pair of rotatable members, each pair of members being rotatable about a common axis and capable of simultaneously turning in opposite directions, a shaft having the members rotatably mounted thereon and providing a common axis about which the said members turn, bearing means arranged intermediate the rotatable members and their shaft to facilitate the turning of said members therearound, and padding provided upon the inner surface of the structural member of the support, said padding furnishing cushioning of the gymnast from the operative components of said structural member.

4,340,216

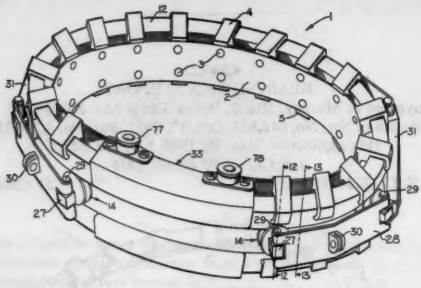
BEARING AND SUPPORT

Raymond J. Murphy, Rte. 2, Bonne Terre, Mo. 63020

Division of Ser. No. 842,532, Oct. 17, 1977, Pat. No. 4,204,719.
This application Mar. 28, 1980, Ser. No. 135,194
Int. Cl.³ A63B *69/00*
U.S. Cl. 272—109 **36 Claims**

1. A crossarm for use in conjunction with gymnastic equipment including a pair of supportive tracks, at least a pair of bearings, one of each bearing being operatively associated with one of said tracks, each bearing including a pair of counter rotatable members, said pair of members being rotatable about a common axis, a shaft having the pair of members rotatably mounted thereon and providing the common axis about which said members rotate, bearing means arranged intermediate the said rotatable members and the shaft to facilitate the turning of the said members therearound, a tubular member extending approximately the distance between each pair of bearings and being connected thereto, a sheave rotatably mounted proxi-

mate each end of the tubular member, a series of cables, and one of each cable operatively associated with the equipment



and extending around the sheave for connection with the crossarm.

4,340,217

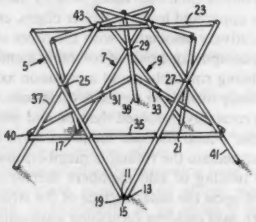
MONKEY MAZE

Robert E. Gillis, P.O. Box 67, Aptos, Calif. 95003

Filed Dec. 22, 1980, Ser. No. 218,571

Int. Cl.³ A63B 9/00

U.S. Cl. 272—113 **4 Claims**



1. A climbing maze for children normally resting on a plane surface such as the ground comprising in combination:

a. three triangular members of substantially equilateral configuration formed of poles joined at the apices,

b. each of said triangular members being arranged with one of the apices down, resting on the ground and equally spaced from each other, with the opposite sides to said apices substantially forming an imaginary horizontal plane parallel to the ground,

c. each of said triangular members having its top apices intermeshed with those of a neighbor, forming a plurality of first crossings,

d. a fourth triangular member extending in a horizontal plane around said three triangles, forming a second series of crossings therewith,

e. three straight members, each lying inside and engaging one of the apices of said fourth triangle and extending upward onto the plane formed by the bases of said three triangles and down to the ground to form a third series of crossings and

f. binding means binding the members together at each of said crossings.

4,340,218

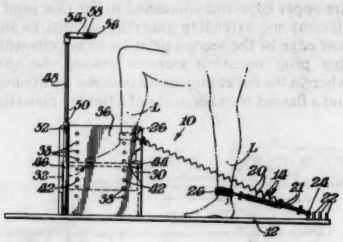
RESILIENT TYPE EXERCISER FOR SIMULATING CLIMBING

William T. Wilkinson, P.O. Box 3567, Greenville, Del. 19807

Filed Feb. 17, 1981, Ser. No. 235,419

Int. Cl.³ A63B 21/04

U.S. Cl. 272—136 **18 Claims**



1. An exercising device for simulating the action of climbing comprising a base, resisting means secured to said base having means for attachment to the legs of the user to provide a force resisting movement of the user away from said resisting means, a step on said base spaced generally within a normal stride distance from said resisting means so as to receive the foot of a user during an action against said resistance means, said step including an upper platform and downwardly depending side walls, and vertical adjusting means cooperating with said side walls for vertically adjusting the height of said platform above said base.

15. A method of simulating climbing comprising the steps of vertically adjusting a platform a selected distance above a base, securing the platform in position, mounting resilient resistance means to the base, attaching the resistance means to the ankles of the user, stepping up on to the platform one foot at a time in opposition to the force of the resilient resistance means, stepping down from the platform one foot at a time, and repeating the stepping up and stepping down.

4,340,219

TOY WTH INTERLOCKING OBJECT AND OBSTACLE

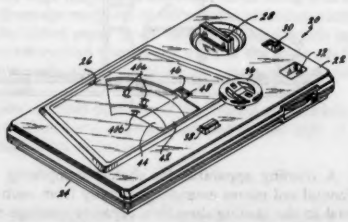
Isamu Saito, and Hiroyuki Watanabe, both c/o 9-10 Tateishi, 7-Chome, Katsushika-Ku, Tokyo, Japan

Filed Nov. 4, 1980, Ser. No. 203,879

Claims priority, application Japan, Oct. 17, 1980, 55-147975

Int. Cl.³ A63F 9/14

U.S. Cl. 273—1 GA **12 Claims**



1. A toy which comprises:

a housing at least one support means rotatably mounted on said housing, said support means having a plurality of obstacle means located on it and movable with it;

a drive means located on said housing, said drive means including a clutch means, said clutch means having an engagement position and a non-engagement position, said

drive means capable of rotating said support means on said housing when said clutch is in said engagement position;

a movable means movably mounted on said housing and positioned in association with said support means, said movable means capable of moving with respect to said support means, said movement of said movable means resulting in said movable means having the capacity to both avoid contacting each of said plurality of said obstacle means, and to contact each of said plurality of said obstacles means, when said movable means contacts any one of said plurality of said obstacle means said movable means capable of interlocking with said individual obstacle means contacted, said interlocking of said movable means with any of said plurality of said obstacle means stopping the rotation of said support means and causing said clutch means to shift from said engagement position to said non-engagement position and being maintained in said non-engagement position for as long as said movable means is interlocked with said obstacle means;

reset means associated with said movable means and capable of disrupting said interlockment between said movable means and any of said plurality of said obstacle means and allowing said clutch means to shift from said non-engagement position to said engagement position.

4,340,220

AMUSEMENT DEVICE

John W. Dunavant, 388½ N. Saginaw St., Pontiac, Mich. 48058

Filed Dec. 18, 1980, Ser. No. 217,691

Int. Cl.³ A63H *33/00*; A63F *9/06*

U.S. Cl. 273—1 GF **6 Claims**

1. An amusement device comprising

a first elongated member of substantially circular cross-section, said member having near an end thereof an enlarged portion and at said end a non-planar surface, and

first and second belt-balancing-hook members, each of said members having passing therethrough in a portion thereof distal from a hook portion of said member a bore of such dimensions as to permit said member to be fitted snugly over said first elongated member.

4,340,221

PIN GUIDE ARM

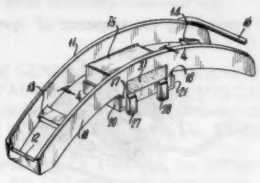
Thomas M. Camilleri, 277 Avenue W, Brooklyn, N.Y. 11223

Continuation-in-part of Ser. No. 877,119, Feb. 13, 1978, abandoned. This application Jun. 5, 1980, Ser. No. 156,738

Int. Cl.³ A63D *5/02*

U.S. Cl. 273—43 E **7 Claims**

1. A pin guide arm for an automatic pin-setter bowling machine, the pin guide arm adapted to cooperate with the pin wheel to support a bowling pin during a part of the distance the pin is raised by the pin wheel to a turnaround pan, the pin guide arm comprising two rails, each rail providing a bearing surface for the bowling pin, the bearing surface of one rail being higher than the bearing surface of the other rail and the higher rail being provided with guide means at about the end of the pin guide arm closest to the turnaround pan, the pin



guide arm being attached to a support by a mounting bracket permitting the pin guide arm to pitch, roll and yaw.

4,340,222

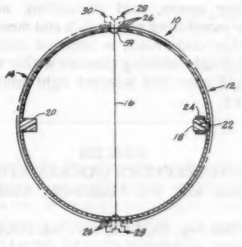
GAME BALL

Darle L. Kerkenbush, Diamond Bar, and Peter P. Blaszcak, Jr., Sierra Madre, both of Calif., assignors to Wham-O Mfg. Co., San Gabriel, Calif.

Filed Jun. 30, 1980, Ser. No. 164,280

Int. Cl.³ A63B *41/10*, *39/08*

U.S. Cl. 273—61 R **7 Claims**



1. A hollow, spherical ball comprising:

a flexible thermoplastic spherical envelope having an interior surface and an exterior surface;

a constriction valve integrally formed in the interior surface of the ball, the constriction valve comprising a molded plug of solid material having a passage extending through the plug for providing a path for the introduction of an inflating gas with the interior of the ball;

a collar disposed about the plug, the collar having a traverse dimension smaller than the plug for compressing and constricting the plug and the gas introduction path to prevent the escape of gas introduced therein; and

a plurality of upstanding fingers raised from the exterior surface of the ball and covering a substantial portion of the entire surface thereof.

4,340,223

MICROCOMPUTER CONTROLLED REACTION GAME

Wayne A. Kuna, Oak Park, and Christian H. Oberth, Chicago, both of Ill., assignors to Marvin Glass & Associates, Chicago, Ill.

Filed Jan. 30, 1981, Ser. No. 229,921

Int. Cl.³ A63B *71/04*

U.S. Cl. 273—1 GC **13 Claims**

1. A microcomputer controlled game device comprising:

a housing having a playing surface means for moving said playing surface;

a plurality of light emitting elements spaced across said surface;

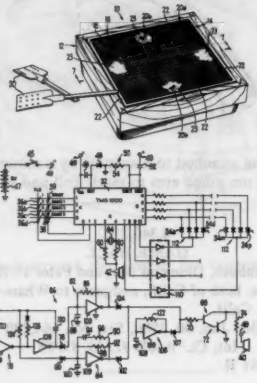
means for sequentially illuminating said elements in an erratic path;

a manually actuable switch on said housing means for pro-

viding coaction between said switch and said playing surface and means for establishing a predetermined time period;

and

means for controlling the sequence of operation of said



illuminating means, said controlling means including means for monitoring said switch and means for determining whether said switch is actuated coincident with an illuminated light emitting element within a predetermined time period after said selected light emitting element is illuminated.

4,340,224

GOALKEEPER'S HOCKEY STICK

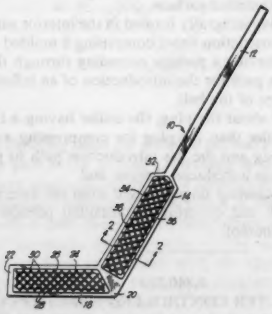
Hilton S. Staats, R.R. #6, Hagersville, Ontario N0H 1H0, Canada

Filed Sep. 18, 1980, Ser. No. 188,423

Claims priority, application Canada, Jul. 16, 1980, 356282

Int. Cl.³ A63B *59/12*

U.S. Cl. 273—67 A **1 Claim**



1. A goalkeeper's hockey stick comprising an elongated stick-like handle portion having a longitudinal axis, a flat shaft portion extending from a lower end of the handle portion and aligned with the longitudinal axis thereof, said flat shaft portion being wider than the handle portion and having opposed longitudinally-extending straight sides parallel to said longitudinal axis, and a flat blade portion extending from a lower end of and inclined to the flat shaft portion, said blade portion having parallel upper and lower straight edges extending from respective sides of the shaft portion, with the shaft portion and handle portion being inclined to the horizontal away from the blade portion when the upper and lower edges of the blade portion are horizontal, the shaft portion and the blade portion each having a continuous perimeter frame defining an open blade area and an open shaft area respectively, said blade area and said shaft area each being open to both sides of said hockey stick, and a resilient mesh formation in each area secured to the perimeter frame thereof and operable to absorb the force of a hockey puck striking the respective area.

4,340,225

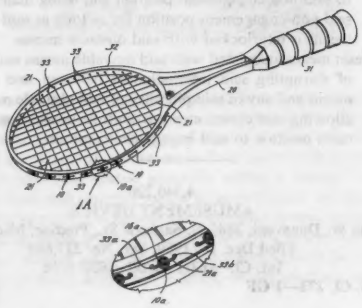
GAME RACKET AND APPARATUS FOR ADJUSTING THE TENSION IN THE STRINGS OF A GAME RACKET

Craig R. Wilson, 9550 Ella Lee La., Apt. 2001, Houston, Harris County, Tex. 77063

Filed Apr. 13, 1979, Ser. No. 29,717

Int. Cl.³ A63B *51/12*

U.S. Cl. 273—73 E **2 Claims**



1. A racket having,

a head comprising a closed frame having a plurality of coplanar holes therethrough at spaced intervals,

a handle connected to the head,

a string passing through the holes of the head and across the closed frame to form a striking surface,

a plurality of tensioning screws, each screw positioned between a single pair of the coplanar holes of the closed frame, each tensioning screw having a head having at least one shallow notch extending thereacross for releasably holding the string and an engaging means exposed to the interior of the closed frame for turning the screw, and

the string passing over and contacting the head of the screw so that turning the screw one way increases the tension on the string and turning it the other way decreases the tension on the string.

4,340,226

GAMES RACKET

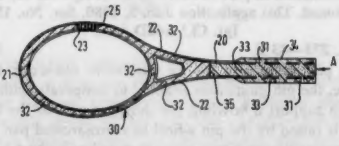
Robert C. Haines, Huddersfield, England, assignor to Dunlop Limited, London, England

Filed Aug. 12, 1980, Ser. No. 177,394

Claims priority, application United Kingdom, Aug. 24, 1979, 7929589

Int. Cl.³ A63B *49/10*

U.S. Cl. 273—73 F **13 Claims**



1. A games racket comprising:

A head and a shaft, the head being of hollow tubular cross

section over a majority of its perimeter, the shaft having a hollow tubular cross section in communication with the hollow tubular cross section of the head so that both said hollow tubular cross sections may be filled with foam material injected from the distal end of said shaft,

a first foam material of polyurethane foam of density from 0.10 to 0.25 g/c.c., filling at least the hollow cross section of said head,

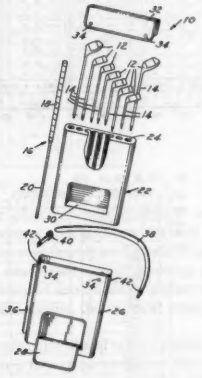
a second foam material of rigid polyurethane foam of density from 0.30 to 0.50 g/c.c., filling the entire remaining hollow portion of said shaft from an interface with said first foam, said second foam material also covering the outer surface of the shaft adjacent the distal end thereof so as to form a handle thereon of a larger diameter than said shaft which is integral with the second foam material inside said hollow cross section of said shaft.

4,340,227

GOLF CLUB SET AND CARRYING CASE

William J. Dopkowski, Brighton, Mich., assignor to B.P.A. Enterprises, Inc., Detroit, Mich.

Filed Dec. 1, 1980, Ser. No. 211,691
Int. Cl.³ A63B *53/02, 55/00*
U.S. Cl. 273—77 R **6 Claims**



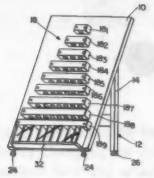
1. A golf club set comprising a plurality of differing club heads with individually differing alphanumeric designations, each said club head having an attached shank of predetermined length extending from the associated club head, said predetermined lengths differing in correspondence with said differing alphanumeric designations of said club heads, a golf club handle of predetermined fixed length, means associated with each said club head and with said handle for releasably attaching each of said golf club heads individually to said golf club handle so as to form a golf club having a predetermined overall length which varies with said alphanumeric designations, a rectangular hollow carrying case having an open end, a zippered closure in one side wall of said case comprising a rectangular flap attached to said case along an edge remote from said open end and zipper means extending around the three remaining edges of said flap and around an opposing surface of said case, a rectangular one-piece insert of foam rubber construction received in and filling the interior of said hollow case with an insert surface adjacent to said open case end, said insert having a plurality of blind tubular openings extending from said surface on parallel spaced opening axes and a blind rectangular recess opening in alignment with said zippered closure for storage of accessories, said tubular openings being adapted to receive said head shanks one in each of said openings such that said club heads rest upon said surface in a spaced array corresponding to said opening array, a tubular holster mounted externally of said case and extending lengthwise along one side wall of said case parallel to said opening axes for removably receiving said handle, a cover including means for removably mounting said cover over said openings so as to protect said club heads while leaving said handle exposed, and an adjustable shoulder strap extending from said bag.

4,340,228

NUMBER GENERATING DEVICE AND GAMING APPARATUS INCORPORATING SAME

Edward L. Robbins, 542 Marilyn Dr., Mandeville, La. 70448, and Robert S. Forster, 22 Wisteria La., Tchefuncta Estates, Covington, La. 70433

Filed May 5, 1981, Ser. No. 260,833
Int. Cl.³ A63F *5/02;* **G09B** *23/02*
U.S. Cl. 273—138 R **7 Claims**



1. A gaming device for use with a plurality of spheroidal objects comprising a generally planar support member which is positioned, in use, in an angle with respect to the horizontal, a plurality screening elements which are mounted on said support member and through which the spheroidal objects pass, each of said screening elements comprising an elongate block member having at least one transverse aperture extending therethrough, each said block members being disposed on said support member such that, in use, the longitudinal axis thereof extends parallel to horizontal and being spaced from each other vertically along said support member, the number of said apertures in said block members being a function of the vertical positions thereof, and increasing by one from level to level beginning from the top, said apertures in the blocks at various vertical levels being arranged relative to the apertures in blocks at other levels such that a spheroidal object passing through a first aperture in a block member at a one level has an even chance of passing through one or the other of two apertures of the block at a level directly below said one level, means, located below the lowermost block and having a number of collecting chambers therein equal to the number of apertures in the lowermost block, for collecting in respective ones of said chambers the spheroidal objects which fall through said apertures in said lowermost block, and means for adjusting the angle of inclination of said support member.

4,340,229

GOLF CLUB INCLUDING ALIGNMENT DEVICE

Alfred O. Stuff, Jr., 1603 Camerbur St., Orlando, Fla. 32805

Filed Feb. 6, 1981, Ser. No. 231,981
Int. Cl.³ A63B *69/36, 53/08*
U.S. Cl. 273—164 **3 Claims**

1. A golf putter head comprising:

an elongate ball-striking face having a ball striking area, said head having a horizontal plane normal to said face;

sighting means disposed in a top surface of said head for visually determining when said horizontal plane is parallel

with the putting surface, said sighting means having an index adjacent said ball-striking area, said sight means including a cylindrical sighting cavity recessed in said head and having a closed lower end and an open upper end;

a first sighting spot centrally disposed in said open upper end and said first sighting spot being a circular spot disposed concentric with said cylindrical cavity on a transparent lens concentrically disposed in said upper end, said transparent lens having reticle lines to permit the user to hold said head at a peredetermined offset from a parallel position with respect to the surface of the ground;

a second complimentary sighting spot disposed on said

closed lower end wherein an imaginary line through said first spot and said second spot is normal to said horizontal plane, said second spot being circular and concentric with said cylindrical cavity and having a diameter essentially equal to the diameter of said first spot whereby coincidence of said first and second spots causes said second spot to disappear, whereby a user looking along a line of sight vertical with respect to the putting surface will observe coincidence of said first and second spots when said horizontal plane is parallel with the putting surface; and

said first spot being of a dark color and said second spot being of a light color surrounded by said dark color thereby providing visual contrast when said first and second spots are not in coincidence as seen by the viewer.

4,340,230

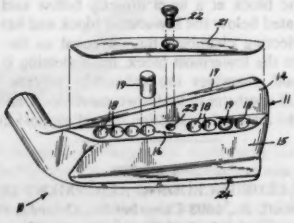
WEIGHTED GOLF IRON

Roy A. Churchward, 6444 Nineteenth Ave. South, Minneapolis, Minn. 55432

Filed Feb. 6, 1981, Ser. No. 232,115

Int. Cl.³ A63B *53/04*

U.S. Cl. 273—171 **9 Claims**



5. A golf club iron comprising a blade-like club head including a club face and a shaft including a grip portion, said blade-like club head having an upper edge, said club head having a weight-receiving matrix with a plurality of vertically oriented openings disposed to the rear of said club head, a plurality of slidable weights removably disposed in selected of said openings, a cap closing said openings to prevent dislodgement of said weights, said cap being entirely located lower than said upper edge in a protected position to the rear of said club head.

4,340,231

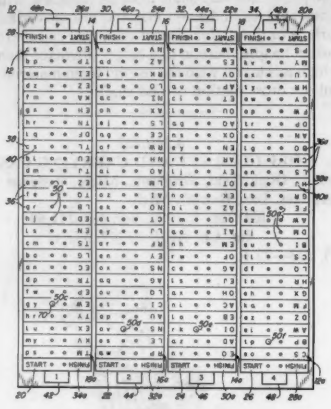
RANDOM SELECTION WORD GAME

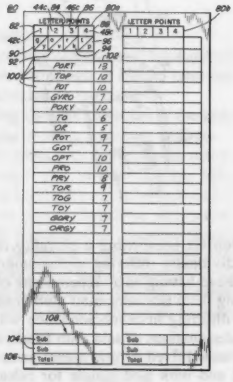
Joseph G. Cammarata, 90 Bartlett Ave., Arlington, Mass. 02174

Filed Feb. 19, 1980, Ser. No. 122,735

Int. Cl.³ A63F *3/00*

U.S. Cl. 273—243 **10 Claims**





1. A word game utilizing random selection of predetermined letters comprising:

a game board having a plurality of sets of letters arranged in successive positions in a path from a start to a finish; each position including at least one letter; each set having a distinctive designation;

means for marking selected positions along each path;

a die associated with each set and having on each of its faces the distinctive designation of its associated set; each die also containing on each face indicia representing an increment along the positions in a path for advancing said means for marking along each set of letters in correspondence with the indicia increment showing on the face of the die which bears the designation of that set for randomly choosing a plurality of letters from which to construct words; and

a scoreboard having a column corresponding to each set and bearing the designation associated with that set, having a space for receiving each letter appearing at a selected

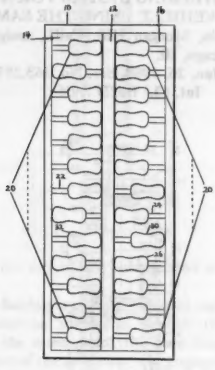
position of the associated set, and having a plurality of rows associated with the columns for recording words constructed from the letters in each column; the letters in each set having a different numerical weight than those in other sets; and the scoreboard including a representation of the numerical weight of each set at the column associated with that set.

4,340,232

ABACUS CHESS GAME

James K. Shaw, 4916 Erie St., Annandale, Va. 22003

Filed Jul. 10, 1979, Ser. No. 56,371
Int. Cl.³ A63F *3/00*
U.S. Cl. 273—260 **11 Claims**



1. A method for playing a game of skill on an apparatus having a frame, a central area enclosed by said frame, a plurality of guide means in said frame, said guide means divided into opposing portions associated with opposing players by said central area, a plurality of sets of playing pieces guided by said portions of said guide means, the method comprising the steps of:

(a) initially arranging the plural sets of playing pieces so that each player has a first predetermined non-zero number of sets in an active position adjacent the central area and a second predetermined non-zero number of sets in an open position having playing pieces thereof withdrawn from said central area;

(b) each player, in turn, interchanging members of an open set and an active set by guiding the playing pieces associated therewith on portions of said guiding means associated with the player; and

(c) removing at least one of an opposing player's playing pieces from an active position to an open position in accordance with indicia provided for said playing pieces.

4,340,233

FERROFLUID SEAL APPARATUS

Akira Yamamura, Framingham, Mass., and Kuldip Raj, Merrimack, N.H., assignors to Ferrofluidics Corporation, Nashua, N.H.

Filed Nov. 19, 1980, Ser. No. 208,438
Int. Cl.³ F16J *15/40, 15/54*
U.S. Cl. 277—1 **17 Claims**

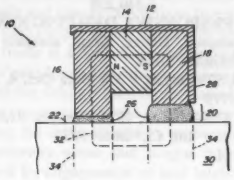
9. In a method for extending the seal life of a ferrofluid, rotary-shaft seal apparatus, which, in sealing a rotary shaft, comprises:

(a) surrounding the rotary shaft with an annular permanent magnetic having one end and another end and having poles of opposite polarity at each end;

(b) surrounding the rotary shaft with first and second, magnetically permeable, pole-piece elements in a magnetic-flux relationship with one and the other ends of the permanent magnet, each pole piece having a one end and another end;

(c) extending the one end of each pole piece into a close, noncontacting relationship with the surface of the rotary shaft, to form first and second gaps therebetween of defined length; and

(d) retaining magnetically, in the first and second gaps, a ferrofluid to form at least two liquid O-ring seals on the surface of the rotary shaft, to effect sealing of the rotary shaft, the improvement which comprises



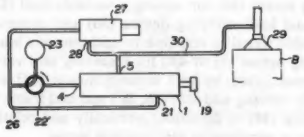
preferentially evaporating ferrofluid from one of the gap lengths by changing the defined gap lengths, to provide for unequal first and second gap lengths, whereby the ferrofluid will evaporate preferentially from the smallest gap length, while the ferrofluid in the largest gap length will provide a seal of extended seal life, in comparison to a seal wherein the gap lengths are smaller and equal.

4,340,234

FLOW REGULATING VALVE AND FLUID FEEDING APPARATUS USING SAME

Yoji Ise, Tokyo, Japan, assignor to Myotoku Ltd., Tokyo, Japan

Filed Apr. 29, 1980, Ser. No. 144,879
Claims priority, application Japan, May 1, 1979, 54-53644
Int. Cl.³ B23B *31/30;* F16K *31/122*
U.S. Cl. 279—3 **6 Claims**



2. An apparatus for feeding fluid for a predetermined time interval comprising; a housing having a valve chamber and a piston chamber disposed lengthwise and adjacent to each other, said valve chamber having a fluid inlet port on one end and a fluid outlet port on the other end, said fluid outlet port having a valve seat inside thereof; a valve movably fitted within said valve chamber and dimensioned to form a suitable gap between it and the inside surface of said valve chamber; a piston slidably fitted within said piston chamber; a connecting rod, said valve and piston being connected together with said connecting rod; and a flow regulating valve having one flow direction for rapid flow and another flow direction for control flow provided on the outer end of said piston chamber to control discharge flow of fluid in said piston chamber when the fluid is being pushed by said piston; a flow path change valve; and fluid conduits for alternately connecting an outlet port of said flow regulating valve and said inlet port of said valve chamber to communicate with a fluid supplying source through said change valve, wherein a fluid introduced from the source into said valve chamber through said inlet port is discharged by passing through said gap and from said outlet port while said valve is being forced by said fluid from the source and moving to engage with said valve seat with a speed adjusted by controlling the flow of the fluid in said piston

chamber by means of the fluid flowing through said flow regulating valve in said another flow direction until said valve engages said valve seat, and wherein fluid introduced from the source into said flow regulating valve outlet port flows rapidly through said one flow direction and forces said piston to move toward said valve chamber and to rapidly move said valve off said valve seat to create a suction at said valve chamber outlet port and to expell fluid within said valve chamber through said valve chamber inlet port.

4,340,235

LOAD RESPONSIVE DAMPING SYSTEM

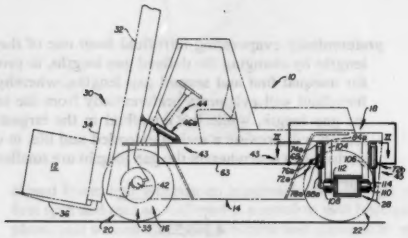
Norman D. Thompson, Dallas, Oreg., assignor to Towmotor Corporation, Mentor, Ohio

PCT No. PCT/US79/00820, § 371 Date Oct. 4, 1979, § 102(e) Date Oct. 4, 1979

PCT Filed Oct. 4, 1979, Ser. No. 91,675

Int. Cl.³ B66F 9/22

U.S. Cl. 280—6 H **12 Claims**



1. In a vehicle (10) of the load carrying type including a horizontally disposed frame (14) having first (16) and second (18) end portions, an axle (28 or 28') mounted to said frame second end portion (18), and a load carrying device (30) being connected to said frame first end portion (16), an improvement comprising:

sensing means (44) for sensing a variable load (12) imposed on said load carrying device (30) and communicating a variable signal in response to said variable load; and,

damping means (45 or 45') for receiving said variable signal communicated by said sensing means (44) and responsively moving said axle (28, 28') and said frame second end portion (18) in directions vertically and relative to each other in response to said variable signal.

4,340,236

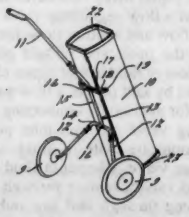
PULLABLE GOLF CLUB RECEPTACLE

Paul F. Seibold, 1760 N. Woodward, Bloomfield Hills, Mich. 48013, and Alfred H. Haberstump, 400 Southfield, Birmingham, Mich. 48009

Filed Apr. 30, 1979, Ser. No. 34,282

Int. Cl.³ B62B 1/12

U.S. Cl. 280—38 **8 Claims**



1. A supporting element for a handle and a pair of wheel supporting arms which includes a unit fixedly attachable to a golf club bag and providing three outwardly extending tubular members having generally U-shaped ends of substantially similar size, a handle, a pair of wheel supporting arms, and pivot means securing said handle and arms in pivoted relation to said ends for collapsing the wheels and handle, said handle and arms being of generally cylindrical tubular shape and of substantially the same diameter, and being adapted to be disposed within said U-shaped ends, said handle and arms having locking tubular sections thereon, movable so as to partially overlay said U-shaped ends.

4,340,237

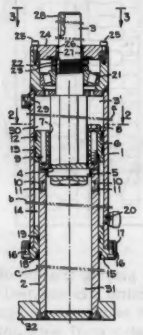
LIFTING AND STEERING SYSTEM FOR A VEHICLE AND A VEHICLE USING THE SAME

Franklin P. Orlando, Morgan Hill, Calif., assignor to FMC Corporation, Chicago, Ill.

Filed Jun. 26, 1980, Ser. No. 163,257

Int. Cl.³ B62D 7/06

U.S. Cl. 280—92 **14 Claims**



1. Lifting and steering system for a vehicle, characterized by comprising a main cylinder having a first closed end, a piston slidably and rotatably received within the cylinder to define a pressure chamber between said piston and said first end of the cylinder, means for introducing and withdrawing pressure fluid from the said pressure chamber, piston rod means fixed to said piston ahd having one end projected through the other end of the cylinder, piston rotation means having one end projected through the said first closed end of the cylinder, and means being provided to prevent relative rotation and yet allow axial movement between said piston rotation means and the piston itself.

4,340,238

SIMULTANEOUS CONNECTION BETWEEN HANDLEBAR AND STEERING FORK OF BICYCLES

Maximino R. Cabeza, Calle Central 709, Miramar, Santurce, P.R. 00907

Filed Oct. 23, 1979, Ser. No. 87,497

Claims priority, application Spain, May 16, 1979, 239,028

Int. Cl.³ B62K 21/18

U.S. Cl. 280—279 **2 Claims**

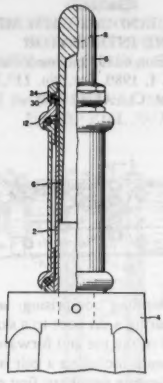
1. In combination with the upwardly extending hollow un-slotted cylindrical stem of the steering fork of the front wheels of a bicycle, and the downwardly extending un-slotted cylindrical handlebar stem which is positioned within the fork stem, means for connecting the two stems comprising:

a. a split ring having a lower part surrounding the upper end of the fork stem and an upper part surrounding the adjacent part of the handlebar stem, and having on its upper part a conical external surface,

b. the upper part of the split ring having an annular series of radial cuts,

c. a race housing surrounding and connected to the steering fork and having a fixed abutment engaging the lower end of the split ring,

d. a nut surrounding the split ring and threaded to the race



housing for movement toward and away from the split ring,

e. the nut having a conical internal surface engaging the conical external surface of the split ring whereby movement of the nut toward the race housing contracts the upper part of the split ring into engagement with the fork stem and the handlebar stem to connect them.

4,340,239

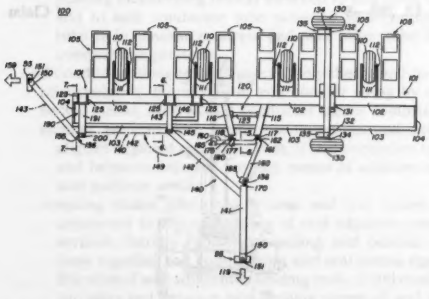
FARM IMPLEMENT WITH TWO-WAY HITCH

Kenneth E. Shoup, P.O. Box 121, Bonfield, Ill. 60913

Filed May 5, 1980, Ser. No. 146,428

Int. Cl.³ B60D *1/14*; B62D *53/04*

U.S. Cl. 280—415 R **9 Claims**



1. A farm implement for attachment to a draft vehicle comprising an elongated frame for mounting farm tools to be drawn through a field in a field direction normal to the longitudinal axis of said frame and to be drawn along a highway in a transport direction parallel to the longitudinal axis of said frame, a single set of wheels shiftably mounted upon said frame adjacent to one end thereof for rotation about a common axis disposed normal to the longitudinal axis of said frame, means for shifting said wheels between an upper field position out of contact with the underlying surface and a lower transport position in contact with the underlying surface, a tongue including a draft section having a draft connection at one end thereof for connection to a three point hitch of a draft vehicle and a connecting section at the other end thereof disposed at an obtuse angle with respect to said draft section, said tongue having a field position wherein the draft section is disposed normal to the longitudinal axis of said frame at the midpoint thereof and having a transport position wherein said draft connection lies on a line parallel to the longitudinal axis of said frame about midway between said wheels, the free end of said connecting section of said tongue being pivotally connected to said frame at a point disposed a substantial distance from the longitudinal midpoint of said frame toward the other end of said frame to accommodate pivotal movement of said tongue between the field and transport positions thereof, said connecting section of said tongue being adapted to be in communication with said frame at a point disposed between the longitudinal midpoint of said frame and said one end of said frame when said tongue is in the field position thereof, and latch mechanism providing the connection for the cooperating structure and a pivot providing the communication between said tongue and said frame, whereby when said tongue is held in the field position thereof by engagement of said latch mechanism and said single set of wheels is held in the upper position thereof by said shifting means said implement can be drawn by the associated draft vehicle in the field direction and when said tongue is released to the transport position thereof by disengagement of said latch mechanism and said single set of wheels is held in the lower position by said shifting means said implement is solely supported by said single set of wheels and the three point hitch of the associated draft vehicle and can be drawn by the associated draft vehicle in the transport direction.

4,340,240

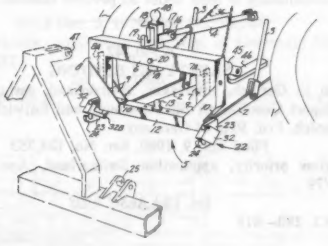
THREE POINT HITCH ADAPTOR FOR A TRACTOR

Ernest L. Anderson, 85115 Florence Rd., Eugene, Oreg. 97405

Filed Feb. 4, 1980, Ser. No. 118,110

Int. Cl.³ B60D *1/000*

U.S. Cl. 280—461 A **2 Claims**



1. An adaptor for attachment to the three point hitch mechanism of a tractor enabling hitch support of various implements, said adaptor comprising,

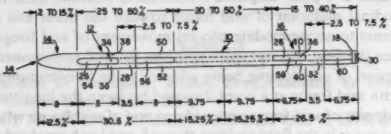
a base member including aligned tubular segments and adapted for coupling both to the hitch arms and top link of the three point hitch mechanism, and

first coupling means carried within each of said segments at the opposite lower sides of said base member and extensible therefrom for adjustable locking engagement with an implement, second coupling means adjustably disposed centrally on said base member above the first mentioned coupling means for implement engagement, said first coupling means removably mounted in said tubular segments, said base member defining upright sockets, lift fork arms each having an upright portion adapted for mounting in a removable manner within one of said sockets, means for locking each lift fork portion to said base member.

4,340,241
SKI

Danial E. Crocket, 1334 Whites Rd., Kalamazoo, Mich. 49008

Filed Apr. 14, 1980, Ser. No. 139,746
Int. Cl.[3] A63C *5/04*
U.S. Cl. 280—609 20 Claims



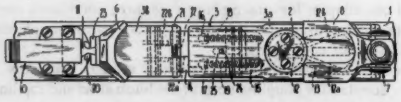
1. A ski having a tip portion bent up to form the ski shovel, a tail portion, a boot platform portion positioned to support and distribute the weight of the skier, a forward portion extending forwardly from said boot platform portion through said tip portion, and a rearward portion extending rearwardly from said boot platform portion through said tail portion, which ski comprises:

a pair of parallel runners separated from each other a distance equal to about 30 percent to about 50 percent of the mean width of said ski and being rigidly and unitarily joined together at spaced intervals which include said tip portion, said tail portion, and said boot platform portion, thereby forming a running surface separated by a longitudinal channel running from said tip portion through said tail portion, which channel extends all the way through said ski in the areas where said runners are not joined together, to form open channel portions; said open channel portions extending, in said forward portion, forward from said boot platform portion and rearward from said tip portion, and, in said rearward portion, rearward from said boot platform portion and forward from said tail portion, and, in said forward portion, constituting at least about 50 percent thereof and, in the rearward portion, constituting at least about 60 percent thereof.

4,340,242
SAFETY SKI BINDING

Ulrich E. Gertsch, Interlaken, Switzerland, assignor to Egs-Skisport Gesellschaft für Forschung und Entwicklung mbH, Munich, Fed. Rep. of Germany

Filed Apr. 9, 1980, Ser. No. 138,753
Claims priority, application Switzerland, Apr. 10, 1979, 3369/79
Int. Cl.[3] A63C *9/08*
U.S. Cl. 280—618 13 Claims

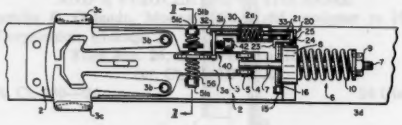


1. A safety ski binding comprising a releasing plate mounted on an associated ski for lateral pivoting in opposite directions, said releasing plate being formed of components adjustably movable with respect to each other in the lateral direction of the ski, a lateral release mechanism for releasably retaining said releasing plate in its skiing position, ski boot sole retaining means and a heel retaining mechanism associated with said releasing plate for releasably holding a ski boot and for releasing the ski boot upon the skier falling forwardly, one of said retaining means and said retaining mechanism being adapted to be movable away from the other upon said releasing plate being pivoted upon release thereof in a lateral direction, and restoring means for restoring said releasing plate to its skiing position, the movable one of said ski boot sole retaining means and said heel retaining mechanism being upwardly pivotable from a normal position thereof upon a lateral release motion thereof.

4,340,243
RELEASABLE SKI BINDING WITH MECHANICAL TIME INTEGRATOR

Richard G. Spademan, Box 6410, Incline Village, Nev. 89450

Filed Feb. 1, 1980, Ser. No. 117,390
Int. Cl.[3] A63C *9/08*
U.S. Cl. 280—624 14 Claims

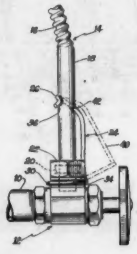


1. A releasable ski binding comprising: separable binding parts for releasably securing a ski boot to a ski at a location on the ski boot rearwardly of the toe and forwardly of the rear of the heel; mechanical means including a pair of relatively shiftable first and second releasing members; first means biasing the second member into frictional engagement with the first member; second means coupled with the first member for biasing the same for movement relative to the second member responsive to a predetermined force applied to said binding parts for a predetermined period of time, said first member being operable for separating said binding parts when said first member moves relative to the second member under the influence of said second means; and means coupled with the second member for adjusting the bias force of said first means.

4,340,244
CLIP FOR SLIP-JOINT TUBE CONNECTIONS

Kenneth W. Scott, 601 Ninth St., Coronado, Calif. 92118

Filed Sep. 22, 1980, Ser. No. 189,377
Int. Cl.[3] F16L *33/20*
U.S. Cl. 285—8 1 Claim



1. A clip for coupling a tube in a slip-joint retained by a compression nut on a neck without requiring dismantling of the slip-joint comprising:

a resilient unitary wire body defining a first open loop of effective diametric dimension slightly smaller than said tube to cause deformation of said tube in use, and a second open loop of diameter slightly greater than said neck and less than that of said nut, the axis of said first loop passing eccentrically of said second loop, whereby said first loop can be engaged on said tube coaxially and angled to grip said tube when said second loop is engaged on said neck by said nut;

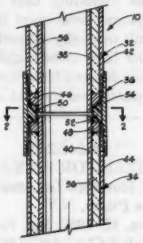
said loops being open in substantially parallel directions and the opening of said second open loop is resilient and narrower than the diameter of said neck to permit engaging said first loop around said tube and snapping said second loop around said neck subsequent to assembly of said tube and slip-joint to positively retain said clip on said neck.

4,340,245

INSULATED PRESTRESSED CONDUIT STRING FOR HEATED FLUIDS

John L. Stalder, Ventura, Calif., assignor to Conoco Inc., Ponca City, Okla.

Filed Jul. 24, 1980, Ser. No. 171,765
Int. Cl.³ F16L *59/16*
U.S. Cl. 285—53 **10 Claims**



1. An improved prestressed conduit string for conducting heated fluids through a well bore, said conduit string being comprised of:

a plurality of connected-together conduit sections, each conduit section comprising:

an elongated large diameter outer tube positioned around a smaller diameter conductor tube, said outer tube being shorter than said conductor tube and being positioned with respect thereto whereby the ends of said conductor tube extend beyond the ends of said outer tube short equal distances; and

bushing means positioned at the ends of said outer tube between said outer tube and said conductor tube, said bushing means being fixedly attached to said outer tube and to said conductor tube whereby said conductor tube is in tension prestress and said outer tube is in compression prestress;

said conduit sections being connected together in end-to-end relationship to thereby form said conduit string by connector means, each of said conductor means comprising:

annular resilient seal means positioned around axially aligned adjacent extending ends of said conductor tubes and between adjacent bushing means of adjacent conduit sections; and

coupling means positioned around said seal means and connected to the outer tubes of said adjacent conduit sections thereby rigidly connecting said conduit sections together and compressing said seal means against the sides of said adjacent extending ends of said conductor tubes and between said bushing means of said conduit sections thereby forming a heat insulated sealed joint between said adjacent conduit sections.

4,340,246

LATCH ASSEMBLY

Larry K. Johnson, Sterling, Ill., assignor to Lawrence Brothers, Inc., Sterling, Ill.

Filed Apr. 14, 1980, Ser. No. 139,781
Int. Cl.³ E05C *5/02*
U.S. Cl. 292—113 **6 Claims**

1. A latch assembly for drawing a free hanging door up to engagement with a support member and holding the door there against, said latch adapted to be mounted on said support member and comprising; a base member for mounting to the support member and including a raised portion having a latch recess formed therein, and actuating member pivotally mounted to said base member about a pivot point, said actuating member being of an integral construction including an upper actuating portion on one side of said pivot and a handle portion on the other side of said pivot; and hook means carried by said actuating portion and arranged for engaging the door; said handle portion including a transversely extending projecting portion terminating in a latch projection, said latch projection being arranged to enter said latch recess upon rotation of said actuating member to a position wherein the door is drawn

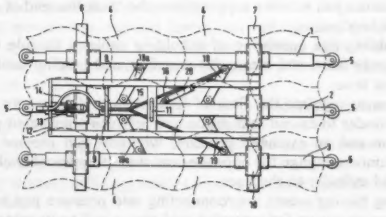
against the support member and for retaining said actuating member and door in a locked position; and biasing means at said pivot point urging said actuating member against said base member, which biasing means permits the entire actuating member to move laterally of said base member such that the latch projection may be disposed within the latch recess with the force of said biasing means serving to retain the latch projection in said latch recess and also providing frictional engagement between said actuating member and said base member capable of retaining said actuating member in an unlocked position substantially in line with the support member.

4,340,247

GRIPPER UNIT FOR CLAMPING AND ALIGNING A LAYER OF CONCRETE PAVING BRICKS WITH COMPOUND ELEMENTS FOR FORMING A STRETCHER BOND OF THE BRICKS INTO A SETTING UNIT

Egon Schnier, Höfen, Fed. Rep. of Germany, assignor to Oldenburger Betonsteinwerke GmbH, Wardenburg, Fed. Rep. of Germany

Filed Dec. 3, 1979, Ser. No. 99,354
Claims priority, application Fed. Rep. of Germany, May 5, 1979, 2918232
Int. Cl.³ B66C *1/44*
U.S. Cl. 294—63 R **3 Claims**



1. In a gripper unit for clamping and aligning a layer of concrete paving bricks with combined compound elements for forming a stretcher bond of the bricks in the form of a setting unit of the type including a plurality of generally parallel clamping bars, each having clamping means at the longitudinal ends thereof for clamping a row of bricks therebetween, and a frame-like support element on which said clamping bars are slidably coupled by means of a guide cross bushing for simultaneous longitudinal and lateral displacement with respect to one another, the improvement comprising:

said clamping bars disposed adjacent to one another being pivotably coupled together by at least one common pivot-

able lever for permitting movement of said adjacent clamping bars while maintaining them in a parallel relationship with respect to one another during such movement; and

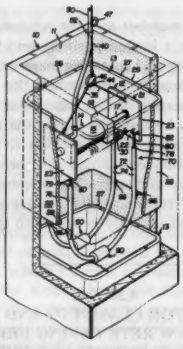
actuating means coupled to said common lever for effecting pivotable movement of said common lever in at least a first direction, said actuating means comprising at least one actuable Bowden cable and an operating cylinder which is coupled to and activates said cable.

4,340,248

DEVICE FOR LOWERING CERAMIC LINERS INTO A CHIMNEY

Irving Riutta, R.D. #1, Box 293, Houghton, Mich. 49931

Filed Nov. 3, 1980, Ser. No. 202,986
Int. Cl.³ B66C *1/54*
U.S. Cl. 294—93 **4 Claims**



1. An apparatus for lowering rectangular cored liners into an existing flue passage, said apparatus comprising in combination:

a fluid actuated piston and support cylinder adapted to be positioned cross-wise within a liner core with the cylinder principal axis substantially normal to the liner walls;

said cylinder having a piston rod extending on the cylinder axis exterior of one end of said cylinder for reciprocal movement relative to said one end, and a rod extending on said principal axis from the opposite end of said cylinder;

a pressure pad member supported on the outer free end of each said rod;

a holding line consisting of a holding cable, a flexible fluid supply hose, and means for coupling said holding cable to said hose;

means to regulate the flow of fluid from said hose into said cylinder to extend said piston rod between a retracted position and an extended position, whereby said pressue pad members engage the opposite core walls to releasably clamp said cylinder to the liner;

spring biasing means interconnecting said pressure pad members operative for returning said piston rod to its retracted position upon said regulating means causing the fluid pressure in the cylinder to fall below a predetermined value;

sling means connecting said pressure pad members with one end of said holding cable;

said holding cable formed with a plurality of uniformly spaced closed loops disposed at predetermined intervals to enable the user to grasp the holding cable for controlling the gravity descent of the liner and cylinder; and

wherein said loops provide gauge means enabling the user to readily compute the vertical descent of the liner within the flue passage, said loops operative for securing said holding cable to a support for anchoring the liner and support cylinder at predetermined intervals within the flue passage;

a pair of fail-safe U-shaped pendants adapted for suspension from said pressure members within the liner core;

each said U-shaped pendant having a pair of upwardly extending arms defining first ends, flexible strap means suspending each said arm first end from an associated pressure pad member;

each said U-shaped pendant having its bight portion in the form of spaced opposed second ends telescopically received in a tubular coupler through bore, said coupler through bore having resilient means therein operative to urge said pendant second ends outwardly such that the pendant arms are normally biased to press on the two opposite core walls, respectively, of the liner;

each said pendant arm having a projection thereon adapted to abut the liner bottom edge to positively support a suspended liner upon the pressure pad members releasing the liner; and

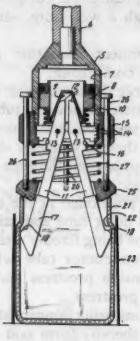
said arm projections including cam means adapted upon contact by a subjacent positioned liner to telescope said pendant second ends inwardly whereby said projections are received within the liner core enabling said cylinder and pendants to be freely hoisted from the flue passage upon the retraction of said piston rod by said regulating means.

4,340,249

JAR STABILIZER FOR PICK-UP ASSEMBLY

Leonard E. Bucklew, Houston, Tex., assignor to General Foods Corporation, White Plains, N.Y.

Filed Sep. 12, 1980, Ser. No. 186,374
Int. Cl.³ B66C *1/54*
U.S. Cl. 294—95 **7 Claims**



1. A jar pick-up assembly adaptable for use with case unloading apparatus and operable for gripping and holding upon mouth jars while being lifted from a case and transferred to another location, said assembly including a shell type housing movable vertically relative to a jar to be picked up and having an actuator reciprocally operable therein, a plurality of elongate opposed finger-like members pivotally attached to and depending from said housing, said members being actuable by said actuator to rock the lower portions thereof from a closed abutting position to an open expended position, said lower portions when closed being transportable through the mouth of a jar by the movement of said housing and when expanded within a jar being urged into bearing contact with opposed interior surface areas thereof, and an annular stabilizing member carried by said housing and disposed around the lower extremities of said finger-like members in a horizontal plane to yieldingly engage an external surface area of said jar while said finger-like members are engaging said interior surface thereof, said finger-like members and said stabilizing member coacting to grip said jar there-between and provide stability therefor while being lifted and transferred by said assembly from one location to another, said stabilizing member being supported by a plurality of headed pins slide fitted in said housing and

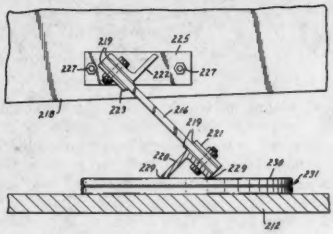
yieldingly extended relative thereto by a spring fitted therebetween.

4,340,250

PLATFORM ROCKING CHAIR SPRINGS

Gene R. Ward, Saint Paul, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Division of Ser. No. 786,487, Apr. 11, 1977, Pat. No. 4,141,530, which is a continuation-in-part of Ser. No. 727,650, Sep. 29, 1976, abandoned. This application Feb. 5, 1979, Ser. No. 9,420
Int. Cl.[3] A45D *19/04;* A47C *3/02*
U.S. Cl. 297—264 6 Claims



1. A platform rocking chair comprising:
(a) a floor engaging base for supporting a seat box,
(b) first angle iron means mounted apex uppermost on said base transversely to the rocking path,
(c) second angle iron means mounted apex downwardly across the underside of the seat box above, rearwardly and in parallel to said first angle iron means, with the rearward surface of the second angle iron means disposed in a plane generally parallel to the forward surface of the first angle iron means and displaced forwardly therefrom a slight distance,
(d) a pair of straight flat coplanar fiber-reinforced plastic springs of a thickness corresponding to said distance extending between the rearward surface of the second angle iron means and the forward surface of the first angle iron means, and
(e) means affixing the opposite ends of said plastic springs to said rearward and forward surfaces of the angle iron means.

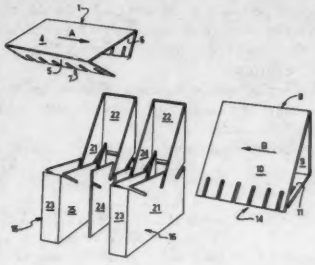
4,340,251

KNOCKDOWN SEATS OF FOLDED SHEET MATERIAL

Vincent Geoffroy-Dechaume, 5 Enclos de l'Abbaye, 78300 Poissy, France

Division of Ser. No. 93,146, Nov. 9, 1979. This application Jun. 8, 1981, Ser. No. 271,540
Claims priority, application France, Nov. 10, 1978, 78 31826
Int. Cl.[3] A47C *7/00*
U.S. Cl. 297—440 3 Claims

1. A knockdown seat in the form of a chair having a back comprising a seat member, a back member and a base member; said seat and back members being adapted to be supported by said base member and said base member being adapted to bear on the ground when said seat is assembled; said back and seat members each being formed of a single foldable semi-rigid sheet material element having complementary cutouts defining parts of joints for assembling said seat, each said single sheet material element comprising two parallel transverse hinges defining a central panel between two side flaps adapted to be folded toward each other to form a triangular prism; said base member comprising two side supports, each comprising a single foldable semi-rigid sheet material element adapted to bear edgewise and divided by four transverse hinges into five panels or flaps which are adapted to be folded spirally, said sheet material elements for said side supports having slots adapted to receive said flaps of said sheet material elements for



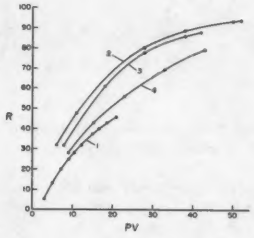
said seat and back members to define said joints for interlocking said members together.

4,340,252

PROCESS FOR THE IN-SITU LEACHING OF URANIUM

Wilton F. Espenscheid, De Soto, Tex., and Tsoung-yuan Yan, Philadelphia, Pa., assignors to Mobil Oil Corporation, New York, N.Y.

Filed May 7, 1979, Ser. No. 36,627
Int. Cl.[3] E21C *41/14*
U.S. Cl. 299—4 6 Claims



1. In the recovery of uranium from a subterranean uranium-containing deposit penetrated by injection and production systems, the method comprising:
(a) introducing into said deposit via said injection system an aqueous lixiviant containing an oxidizing agent, sulfuric acid, and carbon dioxide and having a pH within the range of 1.0–2.5,
(b) displacing said lixiviant through said subterranean deposit to solubilize uranium therein,
(c) producing pregnant lixiviant containing uranium from said production system, and
(d) treating said pregnant lixiviant to recover uranium therefrom.

4,340,253

PREFLUSH-LIXIVIANT PROCESS FOR SOLUTION MINING OF URANIUM ORE BEDS

William M. Breland; Terry R. Guilinger, and Robert S. Schechter, all of Austin, Tex., assignors to The United States of America as represented by the Secretary of the Interior, Washington, D.C.

Filed Jul. 10, 1980, Ser. No. 168,816
Int. Cl.[3] E21B *43/28*
U.S. Cl. 299—5 9 Claims

1. A process for the in-situ mining of subterranean uranium ore deposits containing cations which form carbonate precipitates, comprising the steps of:

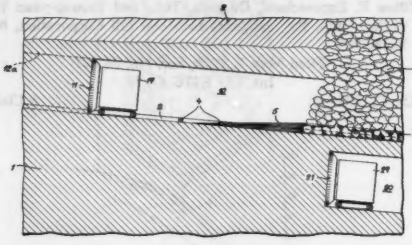
(a) pretreating the subterranean deposit by injecting aqueous inorganic chloride solution into said deposit to substantially saturate said deposit, whereby said cations are displaced from said deposit into said chloride solution;
(b) injecting a first aqueous alkaline lixiviant solution into said deposit to flush said cation-containing chloride solution therefrom;
(c) injecting a second aqueous alkaline lixiviant solution containing an oxidant into said deposit to leach uranium values from said deposit; and
(d) recovering the uranium containing lixiviant solution.

4,340,254

METHOD OF MINING HEAVY COAL SEAMS IN TWO OR MORE BENCHES

Karoly Barsi; Laszlo Dörömbözi; Istvan Forisek; Gyula Kuburczik, and György Stuber, all of Tatabanya, Hungary, assignors to Tatabányai Szénbanyák, Tatabanya, Hungary

Filed Feb. 13, 1980, Ser. No. 121,046
Claims priority, application Hungary, Feb. 14, 1979, TA 1509
Int. Cl.³ E21C *41/00*; E21F *15/00*
U.S. Cl. 299—11 **11 Claims**



1. A method of mining heavy coal seams to be excavated in a plurality of benches at different levels, comprising the steps of:
(a) excavating an upper bench with formation of a stope in the wake of excavation while supporting the roof of the stope so formed by temporary props;
(b) introducing a cementitious slurry into said stope in a minimum amount of substantially 10% of the stope volume, said slurry comprising an aqueous suspension of calcareous matter in a proportion of substantially 10 to 60% by weight, to form a pool of said slurry at the bottom of the stope;
(c) withdrawing the roof-supporting props at a certain distance behind an advancing face of the excavation to enable a cave-in of overburden above the stope whereby fragmented waste rock from said overburden accumulates at the bottom of the stope and is engulfed by the slurry of said pool;
(d) allowing said slurry and said waste rock to harden into a solid layer;
(e) excavating a next-lower bench under the solid layer thus formed; and
(f) repeating steps (b), (c) and (d) with every stope to be undermined by a further excavation at a lower level.

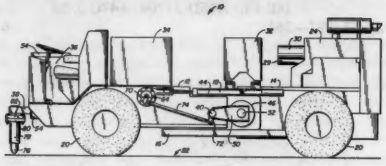
4,340,255

RESONANTLY DRIVEN VERTICAL IMPACT SYSTEM

Raymond A. Gurries, Reno, Nev., assignor to Resonant Technology Company, Sparks, Nev.

Filed Jun. 5, 1980, Ser. No. 157,138
Int. Cl.³ E01C *23/09*
U.S. Cl. 299—37 **11 Claims**

1. A surface impact system comprising:
a mobile carrier vehicle;
a beam having a resonant frequency with a pair of nodes spaced from the ends of the beam and anti-nodes at each end comprising input and output ends respectively and at the center of the beam;
an oscillator fixed to the input end of the beam to vibrate the beam at at least near its resonant frequency;
means for mounting the beam to the carrier vehicle substantially at the node near the input end of the beam;
a weight superimposed over the beam at the node near the output end and having a bearing surface adapted to bear downwardly against the beam at said node;



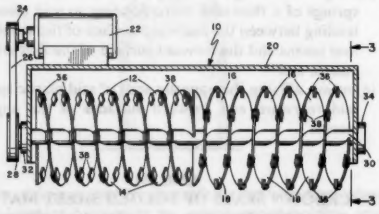
means for coupling the weight to the vehicle to control the vertical position of the weight, said means for coupling being arranged so that upward forces caused by the tool striking the surface are not transferred to the vehicle; and
a tool depending from the output end of the beam and adapted to strike the surface underlying the vehicle at the vibration frequency of the beam as the tool vibrates responsively to vibrations of the beam, generating a reaction force which is substantially absorbed by the weight and not transmitted to the vehicle.

4,340,256

DIAMOND PLANAR CUTTER

Jacque M. Hart, 3444 Garrison, San Diego, Calif. 92106

Continuation-in-part of Ser. No. 820,081, Jul. 29, 1977, abandoned. This application Jun. 11, 1979, Ser. No. 47,253
Int. Cl.³ E01C *23/09*
U.S. Cl. 299—87 **24 Claims**



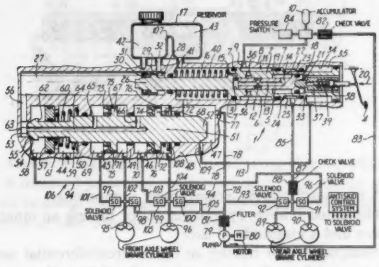
1. A planar cutter assembly for planing of generally flat surfaces comprising:
abrasive cutting means,
cutter support structure constructed to be mounted for rotation about a rotational axis parallel to said generally flat surface and to position said cutting means to engage said generally flat surface upon rotation of said cutter support structure, and
cutter mounting means on said support structure for positioning and retaining said cutting means on said support structure,
said mounting means being arranged on said support structure to define a cylindrical surface having an axis generally coincident to said rotational axis,
said support structure being constructed to retain said mounting means in at least a pair of continuous helical patterns wound in opposite directions from a coterminal central position and having a symmetrical relationship to each other and to the coterminal central positions and having displaced terminations at the coterminal central position,

the cutter support structure being constructed to support the cutting surfaces of the cutting means in essentially perpendicular relationship to the generally flat surface at the positions of contact between the cutting means and the generally flat surface.

4,340,257
HYDRAULIC BRAKE SYSTEM

Juan Belart, Walldorf, Fed. Rep. of Germany, assignor to ITT Industries, Inc., New York, N.Y.

Filed Nov. 10, 1980, Ser. No. 205,499
Int. Cl.³ B60T *8/02*
U.S. Cl. 303—114 **47 Claims**



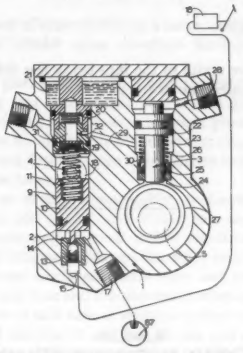
1. A hydraulic brake system comprising:
a master brake cylinder having a pressure chamber and a master cylinder piston;
a brake booster having a booster piston coupled to said master cylinder piston to pressurize said pressure chamber;
wheel brake cylinders;
antiskid control apparatus including solenoid valves coupled to said wheel cylinders to control, in the event of an imminent locked condition of a wheel, the pressure in an associated one of said wheel cylinders independently of the pressure in said pressure chamber;
a valve device coupled to said pressure chamber, said brake booster, certain ones of said solenoid valves and certain ones of said wheel cylinders, said valve device being opened dependent on a differential of pressure between the pressure in said pressure chamber and said certain ones of said wheel cylinders, the pressure in said certain ones of said wheel cylinders being lower than the pressure in said pressure chamber by a predetermined amount, said valve device interrupting a fluid connection between a fluid chamber associated with one end of said booster piston and an unpressurized fluid reservoir, when said valve device is opened, said fluid chamber being disposed relative to said one end of said booster piston such that said booster piston reduces the volume of said fluid chamber when moved in an actuating direction.

4,340,258
HYDRAULIC ANTI-SKID BRAKING SYSTEMS FOR VEHICLES

Glyn P. R. Farr, Warwickshire, England, assignor to Lucas Industries Limited, Birmingham, England

Continuation of Ser. No. 67,936, Aug. 20, 1979, abandoned. This application Nov. 20, 1980, Ser. No. 208,642
Claims priority, application United Kingdom, Aug. 18, 1978, 33788/78
Int. Cl.³ B60T *8/02*
U.S. Cl. 303—115 **24 Claims**

1. An hydraulic anti-skid braking system for a vehicle comprising a vehicle brake, a supply of operating fluid for applying said brake, skid sensing means for producing skid signals, a modulator assembly for modulating said supply of operating fluid to said brake in accordance with said skid signals from said skid sensing means, said modulator assembly incorporating an expansion chamber, an hydraulic pump incorporating a plunger working in a bore having a working chamber which is connected to said expansion chamber, a reservoir for fluid, positive drive means for urging said pump plunger in a first direction to draw fluid from said reservoir into said working chamber during a suction stroke, and pump operating means for applying a force to said plunger to urge said plunger in a second opposite direction to pump fluid from said working chamber into said expansion chamber during a delivery stroke, a dump valve disposed between said expansion chamber and said reservoir for fluid, the dump valve being movable by said skid-sensing means between a normally closed position in which said expansion chamber is pressurised so that said modulator assembly is held in a first position permitting operating fluid to be supplied to said brake and an open position when the skid signal is received whereby the pressure in said expansion chamber is reduced so that the modulator assembly can move into a second position to cut-off communication between said supply and said brake and subsequently reduce the pressure of fluid supplied to said brake, pressurisation of said expansion chamber following correction of a skid with said dump valve in said closed position being limited by said force applied to said plunger by said pump operating means whereafter said phunger is adapted to be held disabled during the subsequent delivery stroke by a volume of fluid trapped between said modulator assembly and said plunger, whereby said pump is operable only to repressurise said expansion chamber following correction of a skid.



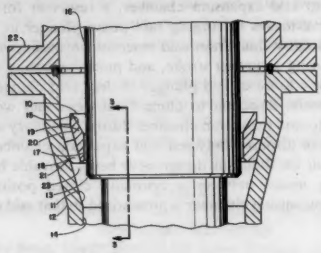
4,340,259
WEAR BUSHING

James R. Green, 3823 Ridgelake, Apt. 223, Metairie, La. 70002

Filed Nov. 24, 1980, Ser. No. 209,718
Int. Cl.³ F16C *31/02*
U.S. Cl. 308—4 A **6 Claims**

1. A wear bushing for use within the downwardly and inwardly tapering inner surface of a bowl section of a casing head bore during the drilling of an oilwell, comprising: a ring of metal or the like; the ring having a bore sufficient to pass drill string members therethrough; the ring bore being small enough to prevent the drill string members from contacting the casing head bore immediately below the ring; three or more lug members mounted on the periphery of the ring, said lug members defining a contact surface so constructed and arranged so as to cooperate with the tapering inner surface of the

bowl section of the bore of the casing head for the purpose of supporting and centering the ring within the casing head bore;



the accumulative width of the lugs being less than one half of the outer circumference of the ring.

4,340,260

MAGNETIC SUSPENSION BEARING

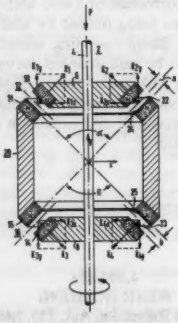
Helmut Forster, Neunkirchen; Paul Hini, Kosbach, and Gerd Stransky, Alzenau, all of Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Munich, Fed. Rep. of Germany

Filed Sep. 5, 1980, Ser. No. 184,474

Claims priority, application Fed. Rep. of Germany, Sep. 25, 1979, 2938809

Int. Cl.³ F16C *39/06*

U.S. Cl. 308—10 **4 Claims**



1. A magnetic suspension bearing for a rotating body having an axis of rotation, the bearing having at least first and second magnet systems which are arranged sequentially along the axis of rotation, each magnet system having two annular, coaxially arranged, permanent magnets which are magnetically poled so as to repel one another, one permanent magnet of each magnet system being affixed to the rotating body, and the other to a stator, the magnetic suspension bearing being CHARACTERIZED IN THAT the permanent magnets are each provided with a pole surface which forms a truncated cone having an axis which coincides with the axis of rotation of the rotating body.

4,340,261

MAGNETIC BEARING ARRANGEMENT

Heinz Wehde, Rothenberg, Fed. Rep. of Germany, assignor to Teldix GmbH, Heidelberg, Fed. Rep. of Germany

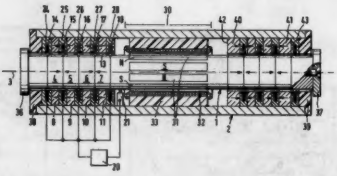
PCT No. PCT/DE79/00047, § 371 Date Dec. 21, 1979, § 102(e) Date Dec. 21, 1979, PCT Pub. No. WO79/00987, PCT Pub. Date Nov. 29, 1979

PCT Filed Apr. 25, 1979, Ser. No. 191,243

Claims priority, application Fed. Rep. of Germany, Apr. 26, 1978, 2818255

Int. Cl.³ F16C *39/00*

U.S. Cl. 308—10 **8 Claims**



1. A magnetic bearing arrangement comprising:

an elongated hollow cylindrical stator having an inner surface and a longitudinal axis;

an elongated rotor having an outer circumferential surface separated from the inner surface of said stator by an annular air gap, said rotor being disposed within said stator for rotation about said longitudinal axis;

a first set of adjacent annular permanent magnet members secured to the circumferential surface of said rotor, said permanent magnet members being axially distributed along said rotor;

a second set of adjacent annular permanent magnet members secured to the inner surface of said stator, each of said second set of annular permanent magnet members being arranged in axial juxtaposition with a corresponding member of said first set so as to generate repelling magnetic forces for stabilizing movement of said rotor in a radial plane transverse to said longitudinal axis;

a plurality of annular windings, one of said windings being interposed between adjacent permanent magnet members of said second set;

a sensor located within said stator and adjacent said rotor for monitoring the axial position thereof; and

a control device coupling the output of said sensor to said plurality of annular windings for controlling the current through said windings in accordance with the deviation of said rotor from a predetermined position, said annular windings generating a magnetic force for stabilizing movement of said rotor in the axial direction.

4,340,262

SPINDLE BEARING AND LUBRICATION SYSTEM

Clyde J. Rugh, and John L. King, Jr., both of Owosso, Mich., assignors to MWA Company, Owosso, Mich.

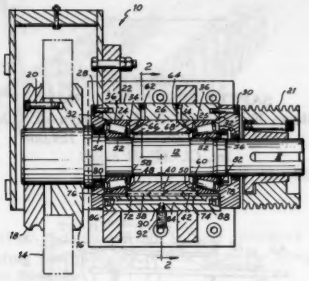
Filed Aug. 5, 1980, Ser. No. 175,557

Int. Cl.³ F16C *33/66*

U.S. Cl. 308—187 **8 Claims**

1. A spindle bearing and lubrication system comprising a housing, a pair of bearings in said housing rotatably supporting a shaft, means for axially locating said bearings in said housing in spaced relation to one another, said locating means including spacer means between and engaging the adjacent ends of said bearings, and retainer means engaging the remote ends of said bearings, said spacer means cooperating with each bearing to define an inner lubricant cavity, said retainer means cooperating with each bearing to define an outer lubricant cavity, said housing and locating means having lubricant inlet passages leading to at least one cavity associated with each bearing for the lubrication of each bearing and for the flow of lubricant

through each bearing to the other cavity associated therewith, said housing having lubricant outlet passage means, connecting passage means providing communication between each of said other cavities and said lubricant outlet passage means, and a



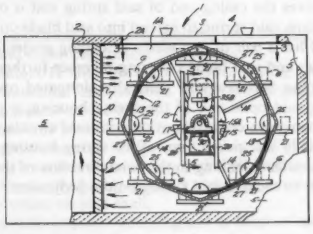
key, said housing and said bearings having slots in which said key is received to prevent said bearings from rotating relative to said housing, portions of said slot in said housing comprising portions of said connecting passage means.

4,340,263

MACHINE FOR CHILLING DRINKING GLASSES

Lloyd E. Webb, P.O. Box 361, Florence, Oreg. 97439

Filed Feb. 21, 1979, Ser. No. 13,182
Int. Cl.³ A47B *49/00, 77/16*
U.S. Cl. 312—266 **4 Claims**



1. In a machine having a circular frame rotatably supported for travel about a horizontal axis, a series of horizontally disposed load receiving supports pivotally depending from points spaced about said circular frame, said supports adapted to receive articles, the improvement comprising,

a continuous flexible member spaced outwardly from the circular frame.

sprocket means fixed to each of said supports in movable engagement with and supporting said flexible member, said sprocket means and said supports rotatable relative the circular frame during frame rotation, and

said continuous flexible member interconnecting each of said sprocket means of each of said supports with one another whereby all of said supports are maintained in a horizontal position regardless of some of said supports being assymmetrically loaded relative the supports center of gravity.

4,340,264

MANUFACTURE OF GLASS BASE LAMP

Carl J. Hottes, Danbury, Conn., assignor to The Perkin-Elmer Corporation, Norwalk, Conn.

Continuation of Ser. No. 54,731, Jul. 5, 1979, abandoned. This application Apr. 6, 1981, Ser. No. 251,687
Int. Cl.³ H01J *9/26*
U.S. Cl. 316—19 **12 Claims**

1. A method of manufacturing a lamp, comprising the steps

forming a tubular glass envelope having a bore therethrough,

forming a glass base having a bore therethrough,

pretreating said bore of said base with a glass composition for enhancing the adhesion between glass and tungsten,

fixing a first tungsten wire in said bore at one end of said base so that said first tungsten wire extends half into and out of said glass base,

soldering an axially compressible conducting element into the other end of said bore of said base so that one end of said conducting element makes electrical contact with said first tungsten wire and the other end of said conducting element freely protrudes from said other end of said bore of said base and is compressed when said other end of said bore of said base is abutted against an object,

fusing said one end of said base to one end of said envelope such that said first tungsten wire extends into said bore of said envelope,

said fusing step forming an airtight seal between said base and said one end of said envelope,

forming an airtight seal at the other end of said envelope,

evacuating said bore of said envelope,

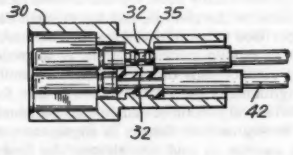
inserting a predetermined amount of vaporizable metal in said bore of said envelope.

4,340,265

MULTI-COAXIAL/POWER PIN CONNECTOR ASSEMBLY HAVING INTEGRAL GROUND

Conrad L. Ott, Lake Grove, and George E. Ris, East Northport, both of N.Y., assignors to Automatic Connector, Inc., Commack, N.Y.

Filed May 2, 1980, Ser. No. 146,022
Int. Cl.³ H01R *4/66, 23/06*
U.S. Cl. 339—14 R **4 Claims**



1. A multi-coaxial/power pin connector assembly carrying coaxial cables and power leads comprising

a molded male shell assembly formed of an electrically conductive material into which said coaxial cables and power leads are assembled to form a male plug,

a molded female shell assembly formed of an electrically conductive material into which said coaxial cables and power leads are assembled to form a female receptacle into which said male plug is inserted,

said molded male and female shells being in electrical contact with each other and each comprising an integral

molded connector panel formed of said conductive material and having a plurality of apertures adapted to directly frictionally engage the outer conductors of said coaxial cables inserted in respective ones of said apertures to make electrical contact between the shell and outer conductors of said coaxial cables, wherein at least one of said molded connector panels comprises an additional aperture, and a common ground wire directly fitting into, frictionally engaging and making electrical contact with said additional aperture to directly connect said common ground with said coaxial outer conductors and to ground each of said shells.

4,340,266

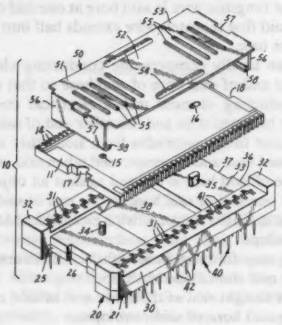
CONNECTOR SYSTEM

Steven L. Grovender, St. Paul, Minn., assignor to Minnesota Mining and Manufacturing Company, Saint Paul, Minn.

Continuation of Ser. No. 908,152, May 22, 1978, abandoned. This application Jan. 21, 1980, Ser. No. 113,728

Int. Cl.³ H01R *23/72*

U.S. Cl. 339—17 CF **7 Claims**



1. A connector system for connection of leadless large scale integrated circuit devices to a printed circuit board and in situ electrical measurement at any contact point while said circuit device is in operation comprising a reduced size, high pin count leadless ceramic carrier, a leaded socket having contact elements enclosed therewithin and a cover member, said leadless ceramic carrier being elongate and having closely spaced contact pads on one surface in two staggered rows along each of its longitudinal edges on 50 mil centers, the individual contact pads in each row being on 100 mil centers, which contact pads are replicated onto the other surface as probing contacts in a single row along each of its longitudinal edges on 50 mil centers, said leaded socket comprising interengaging elongate perimetrically equal top and bottom elements housing contact elements therewithin, said top element having a recess in its upper face to receive said leadless ceramic carrier, said top element having cavities therein in alignment with the staggered contact pads on said leadless ceramic carrier and being longitudinally grooved in its lower face for accomodation of the central portion of said contact elements, said bottom element having cavities therein in alignment with the corresponding cavities in said top element for insertion of said contact elements therein, said contact elements having a leg portion, a central portion connected at one end to said leg portion and at its other end to a spring beam member, and a contact area joined to said spring beam member, said contact area adapted to make wiping contact with said contact pads on said carrier, and said cover member being elongate with a length substantially equal to the length of said carrier and a width just sufficiently narrower than said carrier to thereby expose said single rows of probing contacts along each longitudinal edge of said carrier and having a substantially flat central portion adapted to intimately contact the underlying surface of said leadless ceramic carrier and end portions which are slightly outwardly upwardly angled and joined to depending end walls having an inturned lip at its free ends, said lip adapted to engage an edge of said bottom element to thereby latch said cover member to said leaded socket.

4,340,267

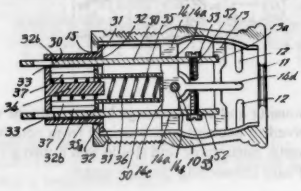
SAFETY ELECTRICAL PLUG

Tokuji Nukaga, Fukazawa 1 - 2 - 5, Setagaya-ku, Tokyo, Japan

Filed Jun. 13, 1980, Ser. No. 159,008

Int. Cl.³ H01R *13/44*

U.S. Cl. 339—42 **5 Claims**



1. In a safety electrical plug comprising a casing formed by a pair of identical casing portions, each casing portion including cord insertion opening means at one end, a rib, rib-blade support means and second opening means at the other end, a pair of parallel and spaced plug blades supported on said rib-blade support means and extending out of said second opening means, a blade covering member slidably received in said second opening means and receiving said blades, said blade covering member having a pair of vertically elongated openings through which said blades extend, and a spring is interposed between said rib-blade support means and blade covering member to normally bias said blade covering member to the extended position; characterized in that a cylindrical spring housing receives the casing end of said spring and is open at one end to allow said spring to extend into said blade covering member, and has a pair of oppositely extending projections at said open end; and said blade covering member further has a circular opening between said vertically elongated openings for receiving said open end of the spring housing, a pair of horizontal grooves in communication with said circular opening for receiving said projections of the spring housing and a circular projection extending in the axial direction of the covering member to receive said spring on the projection.

4,340,268

SNEAK CURRENT PROTECTOR MODULE

Michael Scalera, Randolph, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Jun. 30, 1980, Ser. No. 164,601

Int. Cl.³ H01R *25/00*

U.S. Cl. 339—18 R **11 Claims**

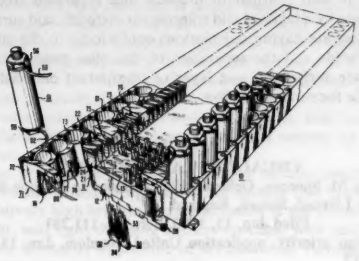
1. A sneak current protector module (**10**) comprising:

an insulative base (**11**) having a plurality of apertures (**13**) therein;

a plurality of slotted beam electrical contact pairs (**31**) mounted in said plurality of apertures in said base;

a plurality of fuse elements (**51**), each of said fuse elements having means (**52,53**) at opposite ends (**55,56**) thereof for effecting an electrical connection to electrically isolated contacts (**33**) in different ones of said contact pairs; char-

acterized in that said sneak current protector module further includes



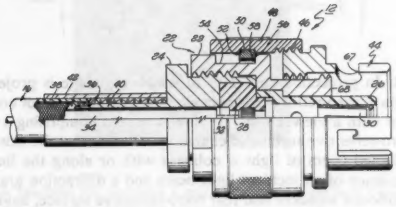
means (71), slidably affixed to said insulative base, for mounting said plurality of fuse elements along an edge (21) of said base.

4,340,269

COAXIAL ELECTRICAL CONNECTOR

Peter G. McGeary, Burbank, Calif., assignor to International Telephone and Telegraph Corporation, New York, N.Y.

Filed May 5, 1980, Ser. No. 146,284
Int. Cl.³ H01R *13/625, 13/639*
U.S. Cl. 339—90 C 4 Claims



1. An electrical connector member for a coaxial cable having inner and outer conductors comprising:

a conductive shell having a forward mating end and a rear termination end adapted to be connected to the outer conductor of the cable;

an insulator in said shell containing a center contact adapted to be connected to the inner conductor of the cable;

a ring rotatably mounted on said shell, said ring embodying a forwardly facing shoulder engaging a rearwardly facing shoulder on said shell;

a rotatable bayonet coupling nut in front of said ring; and

said ring and nut having a threaded connection therebetween whereby rotation of said ring in one direction will cause said shell and nut to move axially toward each other after said nut is coupled to a mating connector member.

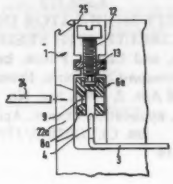
4,340,270

ELECTRICAL TERMINAL UNIT

Manfred Wilmes, and Karl Marienfeld, both of Detmold, Fed. Rep. of Germany, assignors to C. A. Weidmuller KG, Detmold, Fed. Rep. of Germany

Filed Jan. 4, 1980, Ser. No. 109,726
Claims priority, application Fed. Rep. of Germany, Jan. 24, 1979, 2902536
Int. Cl.³ H01R *11/20*
U.S. Cl. 339—95 D 13 Claims

1. An electrical terminal unit comprising an insulating housing and terminals therein for connection of electrical conductors, and in which at least one said terminal comprises a metal member within said housing with a conductor receptor shaped to receive an insulated conductor and provided with at least one cutting edge for penetrating the insulation of and making electrical contact with the conductive core of an insulated conductor, and an actuating member of electrically insulating material which member is movable relative to said metal member and has guiding means within said housing adapted to receive an electrical conductor and to entrain the latter when



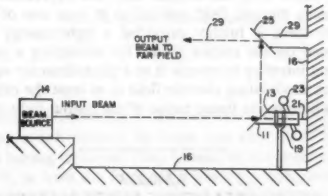
said actuating member is moved, whereby a conductor entrained by said actuating member will be moved into and out of engagement with said conductor receptor of the associated metal members, and in which said actuating member is provided with a bifurcated head, the fork arms of which are situated respectively on opposite sides of said conductor receptor with said metal member and have therein insertion bores which are in alignment with each other and function as entrainment guides for said conductor.

4,340,271

INTERNAL BODY MOUNTED SYSTEM FOR ISOLATION OF, IN ONE DEGREE OF FREEDOM, A BEAM PROJECTED FROM AN OPTICAL SYSTEM WHICH IS SUBJECT TO ROTATIONAL VIBRATION

Curtiss W. Robinson, and Wilbur D. Clingman, both of Seattle, Wash., assignors to The Boeing Company, Seattle, Wash.

Filed Apr. 4, 1980, Ser. No. 137,530
Int. Cl.³ G02B *23/00*
U.S. Cl. 350—16 4 Claims



1. An apparatus, for use with an optical system which is supported by a base system such as an aircraft frame, and which generates and transmits a light beam to the far field or receives a light beam from the far field, for compensating, in one degree of freedome, for the effect on the light beam by a rotational vibration which affects the base system and the optical system, said apparatus comprising:

a. inertial body means, upon which is mounted a first mirror means at an angle of 45° relative to the path of the light beam, which is incident thereon;

b. means connected to the base system, and hence subject to the rotational vibration, for supporting said inertial body means for rotation about a support axis which is coincident with the path of the light beam incident on said first mirror means and which is orthogonal to the axis about which the rotational vibration occurs; and

c. second mirror means positioned relative to said first mirror means such that a light beam reflected off said first mirror means will be reflected off said second mirror means to the far field, wherein in operation said mirror body, with said first mirror means, rotates about the sup-

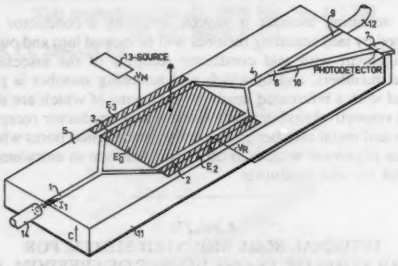
port axis in response to the rotational vibration, resulting in the beam reflected from said first mirror means rotating in a plane normal to said support axis, the amount of rotation being determined by the distribution of the mass of the inertial body selected to compensate for the rotational vibration, so that the beam reflected from said second mirror means remains steady in the far field.

4,340,272

LIGHT INTENSITY MODULATOR IN AN INTEGRATED OPTICAL CIRCUIT WITH FEEDBACK MEANS

Michel Papuchon, and Claude Puech, both of Paris, France, assignors to Thomson-CSF, Paris, France

Filed Apr. 2, 1980, Ser. No. 136,474
Claims priority, application France, Apr. 3, 1979, 79 08372
Int. Cl.³ G02B *5/174*
U.S. Cl. 350—96.14 **11 Claims**



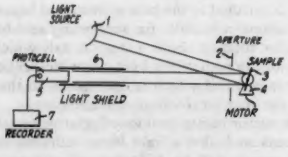
1. A light intensity modulator comprising, on the surface S of a substrate having electro-optical properties, an interferometer with two arms forming monomode guides connected to a monomode input guide intended to receive an incident optical radiation, the radiation fractions propagated in the two arms combining at the outlet of the interferometer in a monomode output guide, the intensity of the emerging radiation depending on the phase shift introduced into the interferometer by a modulating electric field applied to at least one of the arms, wherein there is further provided a light energy separator interposed on the output guide, for extracting a part of the emerging intensity to couple it to a photodetector supplying a feedback modulating electric field to at least the other of said arms, whereby the linear range of the output light intensity is improved.

4,340,273

RETRO-REFLECTING SHEET MATERIAL

Stanton E. Jack, and Robert O. Dark, both of Kingston, Canada, assignors to Alcan Research & Development Limited, Montreal, Canada

Division of Ser. No. 75,007, Sep. 13, 1979, Pat. No. 4,265,938. This application Oct. 27, 1980, Ser. No. 201,156
Claims priority, application Canada, Sep. 21, 1978, 311780
Int. Cl.³ G02B *5/128*
U.S. Cl. 350—105 **5 Claims**



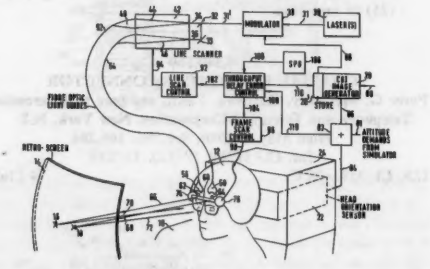
1. A retro-reflector comprising an indentable metal substrate, transparent material overlying a surface of the substrate, and a mono-laver of glass beads of high refractive index adhered to said transparent material and separated from said substrate by a layer of said transparent material, said surface of the substrate having indentations conforming to the adjacent glass beads and the separation of the glass beads from the substrate surface by said layer of transparent material being suitable for retro-reflection.

4,340,274

VISUAL DISPLAY APPARATUS

Archer M. Spooner, Orlando, Fla., assignor to Redifon Simulation Limited, Sussex, England

Filed Jan. 11, 1980, Ser. No. 111,281
Claims priority, application United Kingdom, Jan. 11, 1979, 7901012
Int. Cl.³ G03B *21/60*
U.S. Cl. 350—128 **5 Claims**



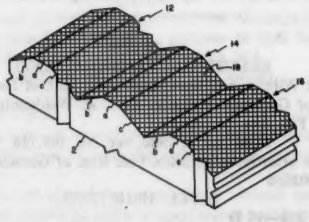
1. In projection apparatus in which an image is projected upon a retro-reflective screen along a line which is not coincident with a viewer's line of view, a screen comprising a rear retro-reflective surface of characteristic such that the axis of a reflected beam of light is colinear with or along the line of incidence of an incident light beam and a diffraction grating, positioned adjacent said rear retro-reflective surface, having a refractive index other than unity and a grooved surface whereby said screen is provided with a retro-reflective characteristic such that the axis of a reflected beam of light differs by a small angle from the line of incidence of the incident light beam.

4,340,275

REAR PROJECTION SCREEN WITH PATTERNED LENTICULAR PRISMATIC STRUCTURE

John L. Henkes, Latham, N.Y., assignor to General Electric Company, Portsmouth, Va.

Filed Jun. 9, 1980, Ser. No. 158,026
Int. Cl.³ G03B *21/62*
U.S. Cl. 350—128 **6 Claims**



1. A rear projection screen for transmitting incident light from a projector so as to provide viewing angles that are

substantially greater in the horizontal direction than in the vertical direction, comprising:

(a) a relatively thin translucent plastic sheet member having an output surface on which are contoured a series of vertical prismatic lenticules sufficiently closely spaced in the horizontal direction so that their structure is not resolvable by the naked eye at normal viewing distances,

(b) said prismatic lenticules each including a flat surface portion and two adjacent inclined surfaces, said inclined surfaces forming an obtuse angle with respect to each other,

(c) the prismatically contoured output surface containing uniformly arranged light diffusing lenslets that provide a relatively high brightness gain diffusion of the transmitted light, said light diffusing lenslets coacting with said prismatic lenticules to provide an asymmetrical viewing field of superior optical properties.

4,340,276

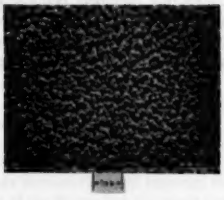
METHOD OF PRODUCING A MICROSTRUCTURED SURFACE AND THE ARTICLE PRODUCED THEREBY

Kent N. Maffitt, Minneapolis, Minn., and Richard F. Willson, Hudson, Wis., assignors to Minnesota Mining and Manufacturing Company, Saint Paul, Minn.

Continuation-in-part of Ser. No. 957,022, Nov. 1, 1978, abandoned. This application Oct. 10, 1979, Ser. No. 80,530

Int. Cl.³ G02B *1/10*; C23C *15/00*

U.S. Cl. 350—164 **12 Claims**



1. A method for forming a microstructured surface having antireflective characteristics comprising

(a) selecting a substantially transparent, polymeric substrate having a predetermined rate of sputter etching under a given set of sputtering conditions;

(b) applying onto said substrate discontinuous microislands of a material selected from the group consisting of metal oxides, refractory metals, and noble metals, having a rate of sputter etching lower than said predetermined rate under said given set of sputtering conditions to form a composite surface on which portions of the underlying substrate are exposed between the discontinuities of said microislands, said material being applied in an average thickness in the range of 0.1 to 10 mm; and

(c) sputter etching said composite surface under said given set of sputtering conditions in a partial atmosphere of a reactive gas to promote the formation of a top layer on said microislands having a desirably low sputtering rate and to preferentially etch the exposed portions of the substrate, while said discontinuous microislands are etched at a lower rate, resulting in a random topography of micropedestals which vary in height within a range of approximately 0.01 to 0.2 μm, and are separated from adjacent micropedestals a distance within a range of approximately 0.05 to 0.5 μm and which exhibit substantially decreased specular reflectance without an attendant increase in diffuse scattering.

10. An optical article having a microstructured surface thereon exhibiting antireflective characteristics, said article comprising

a substantially transparent, polymeric substrate characterized by a predetermined rate of sputter etching under a given set of sputtering conditions and having thereon a random topography of discrete micropedestals varying in height within a range of approximately 0.01 and 0.2 μm, randomly separated from adjacent micropedestals a distance within a range of approximately 0.05 to 0.5 μm, wherein said micropedestals have associated therewith a generally detectable material comprising metal oxides, noble metals, and mixtures and alloys thereof, said material having a rate of sputter etching lower than said predetermined rate under said given set of sputtering conditions, and wherein said topography results in a said microstructured surface which exhibits substantially decreased specular reflectance without an attendant increase in diffuse scattering resulting in enhanced transmissivity.

4,340,277

LIQUID CRYSTAL DISPLAY AND METHOD OF MAKING

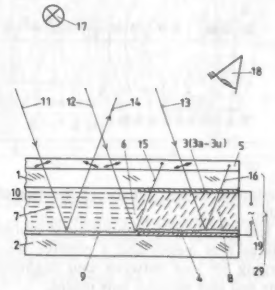
Meinolph Kaufmann, Fislisbach, Switzerland, and Allan R. Kmetz, Chathan, N.J., assignors to BBC Brown, Boveri, & Company, Limited, Baden, Switzerland

Filed Sep. 6, 1979, Ser. No. 72,997

Claims priority, application Switzerland, Dec. 12, 1978, 12626/78

Int. Cl.³ G02F *1/133*

U.S. Cl. 350—347 E **2 Claims**



1. A method of operating a liquid crystal display including:

providing a cell formed by front and rear plane parallel plates having electrode films formed on the inner surfaces thereof, at least the front plate having a transparent and segmented electrode film, wherein a polarizer is provided at the front plate but not at the rear plate, the cell having a reflector at the rear plate, wherein a liquid crystal of positive dielectric anistropy is disposed within the cell between the plates, the liquid crystal molecules exhibiting preferred directions at the inner surfaces of the front and rear plates, with the preferred directions rotated by about 90° to one another, the reflector being formed on the inner side surface of the rear cell plate between the front and rear cell plates and exhibiting a structure determining the preferred direction of the neighboring liquid crystals molecules, the front electrode segments being holohedral; and

applying an operating voltage lying between 1.3 and 2.5 times the Freedericksz threshold voltage (V_{th}) across the electrodes formed on the front and rear cell plates such that the liquid crystal between the electrodes having the operating voltage applied thereacross retains an ability to rotate the polarization plane of light traversing the liquid crystal in some directions and has substantially no influence on light traversing the liquid crystal in other directions.

4,340,278

ELECTROCHROMIC DEVICE

Gerardo Beni, Westfield; Catherine E. Rice, Middletown, and Joseph L. Shay, Holmdel, all of N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed May 19, 1980, Ser. No. 151,443
Int. Cl.[3] G02F 1/17
U.S. Cl. 350—357 10 Claims

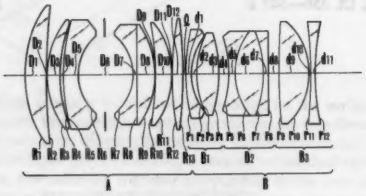
1. An electrochromic device comprising an electrochromic iridium oxide electrode, a counterelectrode, an electrolyte in intimate contact with said electrochromic electrode and said counterelectrode and means for applying a voltage between said electrochromic electrode and said counterelectrode CHARACTERIZED IN THAT said electrolyte is a source of an anion of formula weight in the range 18 to 33 that is capable of being injected into and extracted from said electrochromic electrode under the influence of said applied voltage.

4,340,279

REAR ATTACHMENT LENS

Keiji Ikemori, Yokohama, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Jan. 2, 1980, Ser. No. 109,172
Claims priority, application Japan, Jan. 11, 1979, 54-1920
Int. Cl.[3] G02B 9/60, 15/02
U.S. Cl. 350—422 8 Claims



1. An attachment lens for use at the rear of a master lens, comprising:

a first lens group of positive power including a negative meniscus lens means and a positive lens means with a diverging air lens between said negative meniscus lens means and said positive lens means;

a second lens group arranged rearwardly of said first lens group, having a negative power, and including two pairs of diverging cemented surfaces whose radii of curvature are of opposite sign to each other; and

a third lens group arranged rearwardly of said second lens group, having a positive power and having a positive lens means and a negative lens means, the compound power of said first, said second, and said third lens groups being negative.

4,340,280

DRIVE CONNECTION MECHANISM FOR ADJUSTABLE LENS SYSTEM

Takashi Isobe, Tokyo, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Mar. 17, 1980, Ser. No. 131,194
Claims priority, application Japan, Mar. 24, 1979, 54-38148[U]
Int. Cl.[3] G02B 7/04, 7/10
U.S. Cl. 350—429 5 Claims

1. A mounting assembly for a lens system comprising:

a lens mounting member having a hole therein;

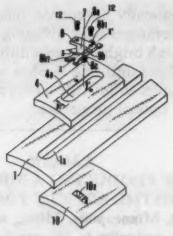
a stationary lens barrel having a guide slot therein;

an actuating member for actuating said lens mounting member;

an intermediate member having a slot formed therein and being arranged between said stationary lens barrel and said actuating member, said intermediate member being movable together with said actuating member in a direction along the optical axis of said lens system; and

a plurality of connecting members for connecting said lens mounting member to said intermediate member, each of said connecting members comprising a penetration portion extending through said slot in said intermediate member in a direction toward said lens mounting member fixing said connecting member in said intermediate member, a slidable contact portion having an elastic member fitted into said guide slot of said stationary lens barrel and extending in a direction parallel to the optical axis of said lens system to exert a engaging portion engageable with said hole provided in said lens mounting member;

each of said connecting members being made entirely of synthetic resin material and arranged equally spaced around the optical axis of said lens system to mount said lens mounting member in said stationary lens barrel.

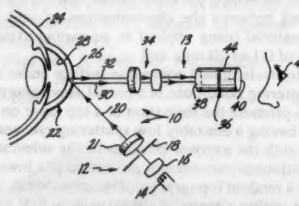


4,340,281

METHOD AND APPARATUS FOR ESTIMATING THE ENDOTHELIAL CELL DENSITY

David J. McIntyre, 1920 116th Ave. NE., Bellevue, Wash. 98004

Filed Apr. 8, 1980, Ser. No. 138,366
Int. Cl.[3] A61B 3/10
U.S. Cl. 351—6 11 Claims



1. A method for estimating the endothelial cell count comprising:

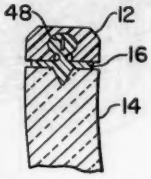
positioning the specular image of the endothelium at a predetermined magnification adjacent the image of a set of grids having a plurality of apertures therein, each grid in said set having a plurality of closely spaced apertures of predetermined size corresponding to a predetermined cell density at said predetermined magnification, and

comparing the cell pattern of said image with each grid in said set to determine which grid most closely corresponds to the cell spacing in said cell pattern.

4,340,282
LENS SECURING DEVICE

Mamoru Murakami, 8-40, Murakuni 2 chome, Takefu, Fukui, Japan

Continuation-in-part of Ser. No. 167,120, Jul. 9, 1980. This application Nov. 12, 1980, Ser. No. 205,892
Claims priority, application Japan, Oct. 13, 1979, 54-141963; United Kingdom, Oct. 2, 1980, 8031760
Int. Cl.³ G02C *5/00, 1/00*
U.S. Cl. 351—154 **5 Claims**

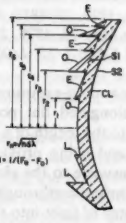


1. A spectacle or sunglass lens securing device for holding a lens in an opening of a frame, comprising:
(a) a groove carvedly provided on the inner peripheral surface of the frame, said groove being substantially circular in cross-section;
(b) a groove carvedly provided on the outer peripheral surface of the lens; and
(c) a strip member interposed between the frame and the lens, said strip member comprising:
a first ridge to be inserted into said groove on the inner peripheral surface of the frame, said first ridge further being substantially circular in cross-section with an axial hole therethrough;
a second ridge to be inserted into said groove on the outer peripheral surface of the lens; and
a thin plate portion clamped between the inner peripheral surface of the frame and the outer peripheral surface of the lens;
whereby said thin plate portion performs the shock absorbing function to protect the lens and the frame from colliding with each other, and said first and second ridges prevent the lens from falling off.

4,340,283
PHASE SHIFT MULTIFOCAL ZONE PLATE

Allen L. Cohen, 10108 Windsong Ter., Richmond, Va. 23233

Continuation-in-part of Ser. No. 970,751, Dec. 18, 1978, Pat. No. 4,210,391. This application Dec. 17, 1979, Ser. No. 98,771
The portion of the term of this patent subsequent to Jul. 1, 1997, has been disclaimed.
Int. Cl.³ G02B *3/08, 5/18*; G02C *7/04*
U.S. Cl. 351—161 **9 Claims**

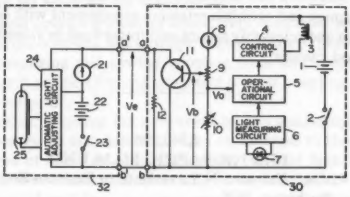


1. A multiple focal power optical device comprising:
body means having a plurality of alternating odd and even, annular, concentric zones, bounded on the outside by radii r_n, with n=1,3,5, . . . , for the odd zones and n=2,4,6, . . . , for the even zones;
first focal power means within at least some of the odd zones for directing incident parallel light to a first focal point;
second focal power means within at least some of the even zones for directing incident parallel light to a second focal point different from said first focal point;
wherein the radii r_n of said odd and even zones are substantially proportional to the square root of n;
and wherein the absolute value of r_1 is set equal to $\sqrt{\lambda d}$, with λ equal to the wavelength under consideration, and d is substantially equal to the reciprocal of the absolute value of the difference between the first and second focal powers.

4,340,284
TEMPERATURE-COMPENSATED SIGNAL TRANSMITTING DEVICE

Yoshiaki Ohtsubo, Kawasaki, and Sakuji Watanabe, Warabi, both of Japan, assignors to Nippon Kogaku K.K., Tokyo, Japan

Continuation of Ser. No. 138,980, Apr. 10, 1980, abandoned. This application May 29, 1981, Ser. No. 268,561
Claims priority, application Japan, May 1, 1979, 54/52473
Int. Cl.³ G03B *7/083, 15/03*
U.S. Cl. 354—50 **9 Claims**



1. A camera having means for arbitrarily selecting the exposure condition of a film thereby to generate a signal based on said selection, said signal representing exposure information and having a temperature coefficient, and exposure time determining means for determining the opening time of the shutter of the camera on the basis of said signal, said exposure information being produced for a speed light during photography using said speed light, the improvement comprising:
signal transmitting means for receiving the signal of said exposure information as input and transmitting said exposure information to said speed light, said signal transmitting means having a transfer function including a temperature coefficient opposite in polarity to said temperature coefficient of said signal representing exposure information.

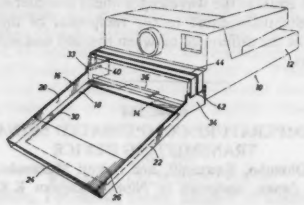
4,340,285
RECEPTACLE ATTACHMENT FOR CAMERAS

George A. Clarke, 4413 Valerie, Houston, Tex. 77401

Filed Jul. 17, 1980, Ser. No. 169,872
Int. Cl.³ G03B *3/00, 17/52*
U.S. Cl. 354—75 **7 Claims**

1. A photograph receiving receptacle attachment for releasable assembly with conventional motorized cameras that transport individual self-developing photographic film units to a presented position subsequent to exposure, said photograph receiving receptacle comprising:
a generally rectangular framework defining a photograph receptacle of sufficient dimension to receive a plurality of self-developing photograph units in stacked manner therein, said framework defining an inlet opening adapted to be positioned in registry with the outlet opening of a camera;

a pair of spaced positioning plate elements being provided on opposed sides of said framework and adapted to receive one end portion of said camera therebetween, a transverse positioning tab extending in angular relation from said framework and adapted to establish surface to surface engagement with a bottom surface portion of said camera, said spaced positioning elements and said transverse positioning element cooperating to stabilize and



orient said rectangular framework in outwardly and downwardly inclined relation with respect to said camera so that said film units will descend by gravity into said receptacle; and

an elastic retainer band being interconnected with said framework and adapted to extend about a portion of said camera and establish retaining engagement with said camera and releasably secure said framework in assembly with said camera.

4,340,286

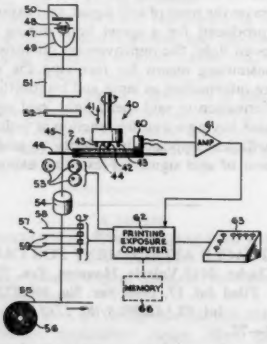
PHOTOGRAPHIC FILM UNIT

David L. Carr, Fairport, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Continuation of Ser. No. 931,060, Aug. 4, 1978, abandoned. This application Feb. 23, 1981, Ser. No. 237,172

Int. Cl.³ G03B *21/50*

U.S. Cl. 354—105 **7 Claims**



1. A photographic film unit adapted for use in photographic apparatus, comprising:

a planar photosensitive film disk having an unexposed area for receiving images;

a molded hub attached to said film disk for rigidly supporting and rotatably positioning said film disk in photographic apparatus; and

magnetic means uniformly dispersed within said molded hub for magnetically recording information on said hub relating to the images.

4,340,287

CAMERA SYSTEM USING STROBOSCOPE

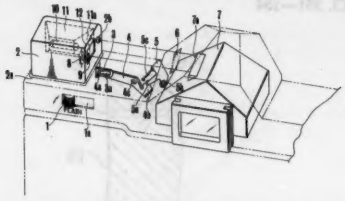
Hiroshi Yamamoto, Yokohama, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Sep. 16, 1980, Ser. No. 187,741

Claims priority, application Japan, Sep. 18, 1979, 54-119636

Int. Cl.³ G03B *15/05*

U.S. Cl. 354—128 **8 Claims**



1. A single lens reflex camera including:

(a) a strobo unit, said unit when not in use assuming a first position relative to a camera body, and when in use assuming a second position, said unit including a discharge tube in a casing and being provided with a window formed in a portion of that of the side panels of said casing which faces a pentaprism housing of said camera through which window said strobo unit projects strobo information bearing light;

(b) a pentaprism provided with a strobo information entrance opening in the opposite side surface to said strobo unit, said entrance opening being located in alignment to said window so that the strobo information bearing light from said window is directed through said entrance opening to the interior of said pentaprism; and

(c) blind means cooperating with said strobo unit, said means light-shielding said entrance opening when said strobo unit lies in the first position, and releasing the light shield when in the second position.

4,340,288

FILM CASSETTE AND METHOD OF MAKING THE SAME

Otto Stemme, Munich; Frank Staudacher, Haan; Peter Lermann, Naring; Justus Danhäuser, Leverkusen; Dieter Engelsmann, Unterhaching, and Karl Wagner, Munich, all of Fed. Rep. of Germany, assignors to Agfa-Gevaert Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Filed Jan. 10, 1980, Ser. No. 110,856

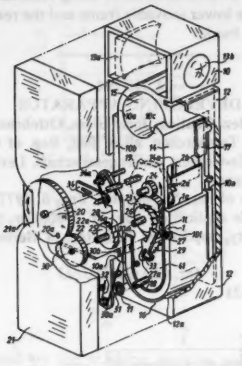
Claims priority, application Fed. Rep. of Germany, Jan. 12, 1979, 2901104; Mar. 7, 1979, 2908814; Mar. 7, 1979, 2908815; Mar. 7, 1979, 2908816; May 25, 1979, 2921348

Int. Cl.³ G03B *1/12, 1/00, 17/26*

U.S. Cl. 354—171 **114 Claims**

1. A film cassette for a multi-exposure film strip, comprising a light-impermeable elongated flat pocket having a length corresponding at least to the length of a film strip to be accommodated therewithin and being provided with at least one opening extending transverse to the elongation of the pocket for passage of the film strip therethrough; means for sealing the opening against the entry of light into the pocket; said pocket having two major walls in part bounding said compartment; spacing means in said compartment for preventing said major walls from moving into contact with one another and thus blocking said compartment; said spacing means comprising

spacing elements located in said compartment laterally of the path of film strip movement therethrough; and wherein said



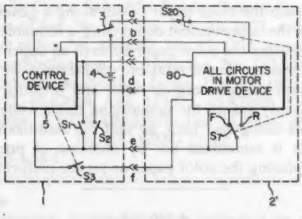
spacing elements are lateral guides for longitudinally extending edge portions of the film strip.

4,340,289

ERRONEOUS EXPOSURE PREVENTING DEVICE

Osamu Maida, Tokyo, Japan, assignor to Nippon Kogaku K.K., Tokyo, Japan

Filed Mar. 3, 1980, Ser. No. 126,351
Claims priority, application Japan, Mar. 8, 1979, 54-26096
Int. Cl.³ G03B *1/00, 17/38*
U.S. Cl. 354—173 **4 Claims**



1. In a camera including a shutter curtain which is capable of opening an aperture for exposure during the movement from a shutter charged position to a shutter released position, a shutter starting device for displacing the shutter curtain from the shutter charged position to the shutter released position by a shutter release operation, and a film transport mechanism for alternatively effecting film wind-up and film rewind operations, the wind-up operation including the feeding of unexposed film in a film supply chamber to a film receiving chamber after an exposure operation and the rewind operation including the transport of the exposed film in the film receiving chamber to the film supply chamber, and having a change-over device for the selection operation, the improvement comprising:

means for preventing the operation of said shutter starting device in response to the operation of said change-over device for selecting the operation of said film transport mechanism in film rewind condition, and

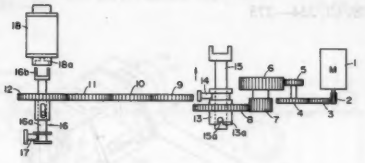
a power supply circuit for said shutter starting device and wherein said preventing means includes a switch which is capable of preventing the supply of energy from said power supply circuit.

4,340,290

ELECTRIC REWIND DEVICE FOR A CAMERA

Nobuo Matsukawa, and Kenji Sekine, both of Kawasaki, Japan, assignors to Nippon Kogaku K.K., Tokyo, Japan

Filed Jan. 30, 1981, Ser. No. 229,936
Claims priority, application Japan, Feb. 5, 1980, 55-12444[U]
Int. Cl.³ G03B *1/18*
U.S. Cl. 354—173 **5 Claims**



1. An electric rewind device for a camera having a clutch device for causing a sprocket operatively associated with a wind-up mechanism for feeding a roll film wound on a spool in a film magazine to be disconnected from said wind-up mechanism and in which a rewind coupling capable of being coupled to said spool is driven by a motor to effect film rewind operation, said electric rewind device comprising:

a first operating member engageable with said clutch device and movable between a first position for connecting said wind-up mechanism and said sprocket and a second position for breaking the connection;

a second operating member operatively associated with said rewind coupling and movable between a third position for disengaging said rewind coupling from said spool and a fourth position for engaging said rewind coupling to said spool; and

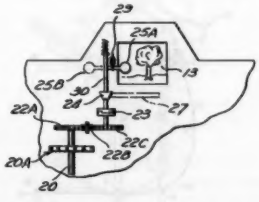
means for blocking the movement of said second operating member to said fourth position in response to the movement of said first operating member to said first position and for releasing said blocking in response to the movement of said first operating member to said second position.

4,340,291

WARNING INDICATOR FOR A CAMERA

Floyd L. Berg, 24391 Wagon Wheel La., Lake Elsinore, Calif. 92330

Filed Nov. 13, 1979, Ser. No. 93,307
Int. Cl.³ G03B *1/00, 17/20*
U.S. Cl. 354—215 **8 Claims**

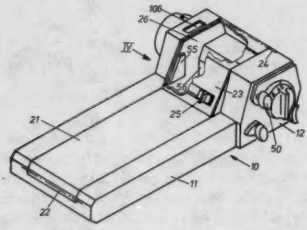


7. In a camera having a body with a viewfinder, means for temporarily receiving a roll of film and means for advancing the film from said roll, the improvement comprising: an assembly provided independently of the film advancing means and operatively in contact with the film for movement in response to advancement of the film and for non-movement in response to non-advancement of the film; a flag moveably disposed in a given position within the field of view of said viewfinder; and means for moving said flag out of same given position in response to the movement of said assembly.

4,340,292
PHOTOGRAPHIC APPARATUS FOR USING ROLL FILMS

Carl Koch, Im Santenbühl, Stetten; Rolf Meyer, Schaffhausen, and Richard Zehnder, Eschenz, all of Switzerland, assignors to Carl Koch, Stetten, Switzerland

Filed May 20, 1981, Ser. No. 265,612
Claims priority, application Fed. Rep. of Germany, May 22, 1980, 3019563
Int. Cl.³ G03B *17/26, 1/04*
U.S. Cl. 354—275 16 Claims

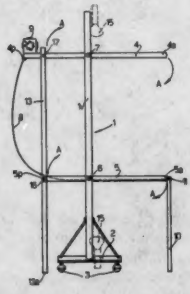


10. A roll film unit for use in a photographic apparatus, comprising a rotatable supply spool with unexposed roll film stock, and a rotatable take-up spool for taking up the roll film stock after exposure, light-tight sleeve means for rotatably mounting said supply spool, an opening defined in said sleeve means for the axial insertion and withdrawal of said supply spool, a lid for closing said opening and being mounted on the sleeve means for pivotal movement about a hinge spindle, said sleeve means having a circumferential wall including a slot for the passage of the film, the spindle being arranged at a side of the sleeve means generally diametrically opposite the slot, said slot having an open end adjoining the opening of the sleeve means, and spring means secured to the sleeve means for resiliently biasing the lid to its position closing the opening of the sleeve means.

4,340,293
FOLDABLE SUPPORT FOR CONTINUOUS BACKGROUND FOR USE IN PHOTOGRAPHING OBJECTS

Enzo Russotti, Via Giovanni Cantoni, 6, 20100 Milano, Italy

Filed Apr. 16, 1981, Ser. No. 275,011
Claims priority, application Italy, May 8, 1980, 21894 A/80
Int. Cl.³ G03B *15/00*
U.S. Cl. 354—291 6 Claims

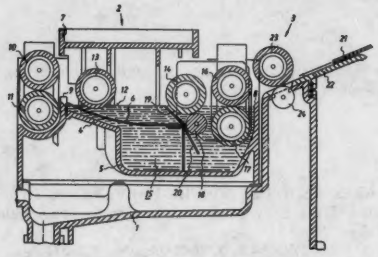


1. A foldable support for a continuous background for use in photographing objects, characterized by comprising a main substantially vertical rigid frame mounted on a base; two superimposed movable frames, both rotating about parallel horizontal axes formed of pairs of hinges provided on the vertical sides of said rigid frame, so as to make up two articulated parallelograms, a continuous sheet being secured between the front edge of the lower movable frame and the rear edge of the upper movable frame.

4,340,294
DEVELOPING APPARATUS

Avelino Fernandez, Gauting; Josef Glass, Ottobrunn, and Viktor Osegowitsch, Taufkirchen, all of Fed. Rep. of Germany, assignors to Agfa-Gevaert Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Continuation of Ser. No. 804,848, Jun. 8, 1977, Pat. No. 4,248,515. This application Aug. 11, 1980, Ser. No. 177,464
Claims priority, application Fed. Rep. of Germany, Jun. 12, 1976, 2626447
Int. Cl.³ G03D *3/13*
U.S. Cl. 354—321 5 Claims



1. An improvement to a developing machine for developing color paper susceptible to pressure sensitization while being processed, which has a series of fluid-containing chambers through which the color paper passes along a generally horizontal path, the improvement comprising: a rotatable submerging roller guiding the color paper beneath an upper surface of fluid in a chamber; and a rotatable counterpressure roller located beneath the submerging roller and pressing the color paper uniformly against the submerging roller while the color paper passes along said path, so that the sensitization of the color paper is minimized not by decrease of pressure, but instead by placing the color paper under the uniform pressure.

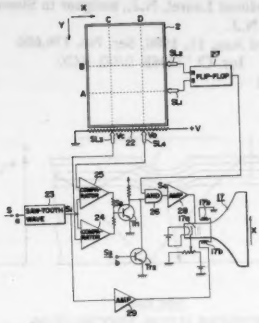
4,340,295
COMPOSITE INFORMATION RECORDING DEVICE

Hiroya Nakamura, Kunitachi, Japan, assignor to Konishiroku Photo Industry Co., Ltd., Tokyo, Japan

Filed Jan. 5, 1981, Ser. No. 222,303
Claims priority, application Japan, Jan. 14, 1980, 55/2119
Int. Cl.³ G03G *15/00*
U.S. Cl. 355—14 R 3 Claims

1. A composite information recording device comprising: a first electrostatic image forming means adapted to scan the image of an original on a copy board and to form the original image as a latent image on an image forming member; a second electrostatic image forming means adapted to form the image of an information supplied externally in the form of an electric signal as a latent image on the image forming member; original position appointing means movable along the side edge of the copy board in the image scanning direction; means for switching the recording mode from one mode in which the latent image is formed by one of the latent image forming means to another mode in which the latent image is formed by the other latent image forming means when the original position appointing means provides its output; masking position appointing means movable along the side edge of the copy board perpendicular to the direction of scanning of the image; and

controlling means adapted to control the second electrostatic latent image forming means in accordance with the masking



signals delivered by the masking position appointing means during the formation of the electrostatic latent image by the first electrostatic latent image forming means.

4,340,296

ELECTROPHOTOGRAPHIC APPARATUS

Katsunobu Ohara; Keiji Tanaka, both of Kawasaki; Yujiro Ando, Yokohama, and Inao Moriyama, Ebina, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Division of Ser. No. 771,309, Feb. 23, 1977, which is a continuation of Ser. No. 480,280, Jun. 17, 1974, abandoned. This application Jun. 24, 1980, Ser. No. 162,532

Claims priority, application Japan, Jun. 19, 1973, 48-69343; Aug. 1, 1973, 48-87068; Aug. 1, 1973, 48-87069; Aug. 1, 1973, 48-87070; Nov. 2, 1973, 48-123670; Jan. 29, 1974, 49-12412

Int. Cl.³ G03G *15/22*

U.S. Cl. 355—35 C **14 Claims**

1. An electrophotographic image reproduction apparatus comprising:

a photosensitive perforate screen including an electrically conductive base having a plurality of fine openings, a photoconductive layer formed on said base, and an insulating layer, capable of supporting an electric charge, formed on said photoconductive layer, wherein one side of said screen includes a conductive outer surface while said insulating layer defines the outer surface at least on the opposite side of said screen and extends continuously therefrom to the inside peripheries of the screen openings, and wherein said insulating layer is capable of retaining electric charges of opposite polarities on the opposite sides thereof, even when exposed to light;

primary electrostatic latent image forming means including electric charging means for providing a uniform charge on said screen and an image irradiation means for illuminating an original image to be reproduced on said screen;

secondary electrostatic latent image forming means including another electric charging means disposed at said one side of said photosensitive screen for projecting corona ions; and

means for applying an electric field between said screen and a recording material capable of sustaining the electric charge applied thereto and which is disposed at said opposite side of said screen.

4,340,297

DEVICE FOR DRIVING COPY BOARD OF A COPYING MACHINE

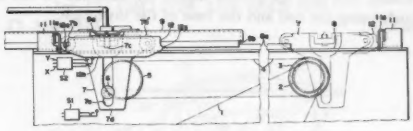
Takashi Tamura, Higashimine, and Yasuyuki Iwai, Hachioji, both of Japan, assignors to Konishiroku Photo Industry Co., Ltd., Tokyo, Japan

Filed Feb. 21, 1980, Ser. No. 123,372

Claims priority, application Japan, Feb. 21, 1979, 54/18424

Int. Cl.³ G03B *27/48*

U.S. Cl. 355—50 **9 Claims**



1. A device for driving a copy board of a copying machine comprising: a driving member adapted to perform a reciprocating movement during the copying operation; a copy board; releasable engagement means whereby said copy board is releasably engaged with said driving member so as to be reciprocatingly moved along a path of travel by said driving member; said releasable engagement means being responsive to a force greater than a predetermined level of force applied to said copy board in the direction of reciprocation to effect disengagement of said copy board and said driving member; stopper means adapted to contact and stop the motion of said copy board when the latter has been moved to the limits of its path of travel by said driving member; said releasable engagement means being further operable to effect reengagement of said copy board and said driving member when said copy board is at a limit of its path of travel and said driving member arrives at such position and control means including switch means to detect whether or not the copy board has been disengaged from the driving member when the copy board and driving member are in the vicinity of their starting position for reciprocating movement.

4,340,298

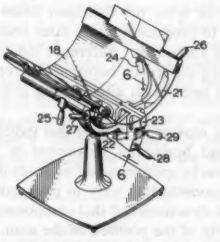
COPYHOLDER

John J. Toby, 6810 W. Fitzwater Dr., Brecksville, Ohio 44141

Filed Sep. 15, 1980, Ser. No. 187,593

Int. Cl.³ G03B *27/62, 27/68*

U.S. Cl. 355—75 **4 Claims**



1. A copyholder for Photostat reproduction camera work comprising a top surface sheet of generally square shape and attached to a center arm unit, a flexible plastic top surface sheet provides a carrier base for opaque copy material, said material being adhered to a paper contour size duplicate of the plastic top surface sheet of slight undersize for ease of movement and having two imprinted cross-lines on its surface with two end extensions functioning in end slotted-center bars for free movement of the plastic top surface sheet, the two slotted-center end bars are enjoined by an axle rod to two swivel arms that tra-

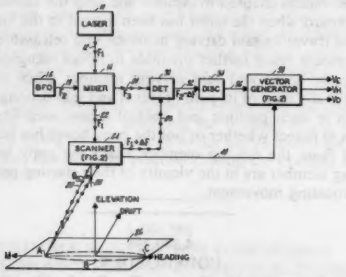
verse side by side, independently of each other, in a forward channel housing of the center arm unit pivoting at the top by means of an axle pin insert, a concave surface curvature is manually formed by elevating the right and the left swivel arms which function independently of each other above the horizontal plane with 0- to 30-degrees of adjustment, said swivel arms are locked into position by two frontal-lock screws and by two forward-angled, side lock screws, a top surface sheet is attached on the center by two flat-head screws to the center arm unit for additional pivotal manual adjustments of the top surface sheet on a horizontal 360-degree turning, last said mentioned means are attached to the standards being the rod and the base of the invention.

4,340,299

OPTICAL DOPPLER RADAR SYSTEM USING A CONICALLY SCANNED LASER BEAM

Robert J. Mongeon, Longmeadow, Mass., assignor to United Technologies Corporation, Hartford, Conn.

Filed Mar. 13, 1980, Ser. No. 129,947
Int. Cl.³ G01P *3/36*; G01C *3/08*
U.S. Cl. 356—28.5 **3 Claims**



1. A method for generating indicia of movement relative to a surface at a position above the surface comprising the steps:

scanning a first laser beam and synchronously receiving, during the scan, the first laser beam scattered from the surface to produce a return laser beam,

generating a frequency difference electrical signal from the frequency difference between the return laser beam and the first laser beam after mixing it with a reference frequency,

generating movement signals that indicate electrical movement and horizontal movement in selected horizontal directions by splitting said frequency difference signal into its components that vary in proportion to movement in selected directions and that component which varies independently of the position of the scan, characterized by:

generating a scan position signal indicative of of the position of the scan from a reference position,

comparing the phase of said scan position signal with the phases of said frequency difference signals at quadrature phase angles the correspond to the quadrature angular positions of the scan to produce indicia of horizontal movements in selected directions resulting in signals proportional to the phase differences,

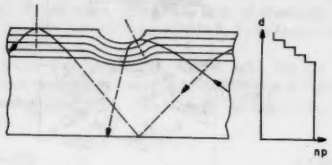
producing an indicia of elevational movement comprising a signal whose magnitude is proportional to the average level of the frequency difference signal.

4,340,300

INPUT SENSOR UNIT FOR A FINGERPRINT IDENTIFICATION SYSTEM

Hartwig Ruell, Mount Laurel, N.J., assignor to Siemens Corporation, Iselin, N.J.

Filed Aug. 11, 1980, Ser. No. 176,696
Int. Cl.³ G06K *9/00, 9/20*
U.S. Cl. 356—71 **3 Claims**



1. An input sensor unit for a fingerprint verification system, comprising

a sensor plate of transparent pressure-sensitive material having first and second parallel planar surfaces and edge surfaces, the plate deforming when a finger is pressed onto the first surface in such a manner that the parallelism between the first and second surfaces is disturbed in accordance with the contour of the topographic relief of the finger, the sensor plate being composed of a material having an index of refraction which varies in a direction perpendicular to the first and second surfaces in dependence upon the depth of penetration of light; and

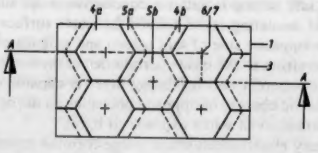
illuminating means for directing light into the plate through an edge surface, so that the light strikes the undisturbed regions of the first and second surfaces at angles which cause total internal reflection and strikes the disturbed regions of the first and second surfaces at angles which cause light to be transmitted out of the plate through the second surface, whereby the light transmitted through the second surface takes the form of a light beam modulated by the topographic relief of the finger.

4,340,301

RETROREFLECTOR PLATE AND A METHOD FOR ITS MANUFACTURE

Kurt Schwab, Mils, Austria, assignor to D. Swarovski & Co., Wattens, Austria

Filed Nov. 25, 1980, Ser. No. 210,231
Claims priority, application Fed. Rep. of Germany, Nov. 27, 1979, 2947719; Mar. 27, 1980, 3011955
Int. Cl.³ G02B *5/13*
U.S. Cl. 350—106 **16 Claims**



1. A retroreflector plate, comprising a transparent plate with a reflective rear side, the front side of which comprises adjacently disposed, curved light incidence surfaces, and the rear side of which comprises adjacently disposed, curved reflection surfaces, in which case the optical axis of each individual light incidence surface coincides with the optical axis of a respective reflection surface, wherein the outlines of said reflection surfaces and their respective light incidence surfaces in each case substantially comprise the same surface content, while having

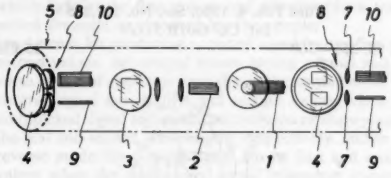
different contour shapes, when said light incidence surfaces or said reflection surfaces are projected perpendicular and parallel onto the plate surface, as the plane of horizontal projection.

4,340,302

ENDOSCOPE WITH SENSOR

Toshio Oku, Tokyo, Japan, assignor to Machida Endoscope Co., Ltd., Tokyo, Japan

Filed Feb. 16, 1979, Ser. No. 12,612
Claims priority, application Japan, Feb. 28, 1978, 53-21649
Int. Cl.³ G01M *21/00*
U.S. Cl. 356—241 2 Claims



1. An endoscope for inspecting a wall surface of an industrial apparatus, said endoscope comprising

a distal forward end adapted to inspect said wall surface,

a rear end,

a fiber optic bundle located in said endoscope between said distal forward end and said rear end,

said fiber optic bundle comprising a light-transmitting optic bundle and a light-receiving optic bundle, said endoscope further comprising a light source for supplying light to said light transmitting optical bundle toward said wall surface, said light-receiving optical bundle optically coupled to carry light reflected from said wall surface to said rear end of said endoscope,

optical measurement means located at said distal end being optically coupled to said transmitting and light-receiving optical bundles to sense the distance between said optical means and said wall surface,

said optical measurement means comprising a common optical lens and at least one transmitting optical lens optically located between said common optical lens and said light transmitting optic bundle and at least one receiving optical lens optically located between common optical lens and said light-receiving optic bundle, said common lens and said transmitting and receiving optical lenses optical coupled to said fiber optic bundle for receiving reflected light from said wall surface at varying positions on the common lens responsive to the distance of said optical means from said wall surface for thereby varying the refraction angle of said transmitted light,

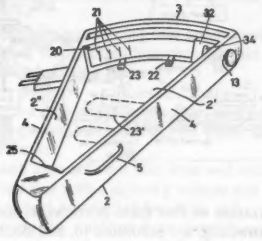
means for sensing the refracted light and providing a display as a function of the angle of refraction to thereby indicate said distance.

4,340,303

ARRANGEMENT FOR THE SPECTRAL ANALYSIS OF SUBSTANCES

Ulrich Grisar, and Wilhelm Berstermann, both of Georgsmarienhütte, Fed. Rep. of Germany, assignors to Kloeckner-Werke AG, Duisburg, Fed. Rep. of Germany

Continuation of Ser. No. 879,869, Feb. 21, 1978, abandoned, which is a continuation of Ser. No. 665,770, Mar. 10, 1976, Pat. No. 4,099,873. This application May 25, 1979, Ser. No. 42,713
Claims priority, application Fed. Rep. of Germany, Mar. 26, 1975, 2513358
The portion of the term of this patent subsequent to Jul. 11, 1995, has been disclaimed.
Int. Cl.³ G01J *3/04, 3/38;* G01N *21/67*
U.S. Cl. 356—313 7 Claims



1. An apparatus for spectroscopically analyzing the composition of a workpiece, comprising a portable support; means including an electrode juxtaposable with a surface of the workpiece for sparking between said surface and said electrode; optical means on said portable support for transmitting into said support the light of a spark between said electrode and said surface; a reflective Rowland grating in said support and defining therein a Rowland circle having a small diameter of about ½ meter; an arcuate guide in said portable support conforming to and extending along said Rowland circle; displaceable means defining a primary slit and being positively displaceable along said arcuate guide for casting the light from said optical means onto said Rowland grating; means for positively displacing said primary slit defining means along said arcuate guide exactly circumferentially of said Rowland circle in an arucate path in which said primary slit is always located on the Rowland circle, and for arresting said primary slit on said arcuate guide against displacement due to vibrations and jarring resulting from transportation of said portable support, at any of a multiplicity of offset positions on said guide; and means defining a plurality of spaced-apart secondary slits fixed on said support at said Rowland circle for breaking the light reflected by said Rowland grating down into an analyzable spectrum, whereby the apparatus is portable and at the same time provides for high accuracy of analysis because of the small diameter of said Rowland circle of about ½ meter in combination with the positive displacement of said primary slit defining means exactly circumferentially of said Rowland circle and arresting of the same at any of the multiplicity of offset positions.

4,340,304

INTERFEROMETRIC METHOD AND SYSTEM

Norbert A. Massie, Thousand Oaks, Calif., assignor to Rockwell International Corporation, El Segundo, Calif.

Filed Aug. 11, 1978, Ser. No. 933,011
Int. Cl.³ G01B *9/02*
U.S. Cl. 356—351 4 Claims

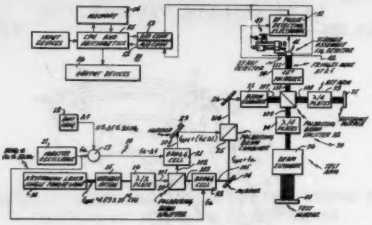
1. Interferometer for measuring optical properties of a test object definable as local optical path length differences, such as the surface contour of a test mirror or the homogeneities of medium, comprising:

means for producing a beam of monochromatic radiation

having two components, having perpendicular polarizations;

means disposed for receiving the beam and separating the two components or portions thereof, and having an orientation to direct one of the separated components into a test branch which includes the test object, the other one to a reference mirror, the test branch and the reference mirror reflecting the respective components, the means for receiving also recombining the reflected components into a composite beam;

means disposed in a path of the composite beam for extracting from each component thereof a portion of similar



polarization so that these portions, as leaving the means for extracting, are permitted to, and do, interfere;

first detection means disposed for intercepting the interfering beam portions for photoelectrically detecting a distribution of radiation intensities of the two interfering beam portions, separately at different points in a plane;

second detection means disposed for bypassing the means for extracting, for detecting the intensity of each component of said composite beam and as it would be effective in each of said points but for the interference; and

means connected to the first and second detection means, for deriving therefrom a distribution of optical path length differences of the two interfering beams.

4,340,305

PLATE ALIGNING

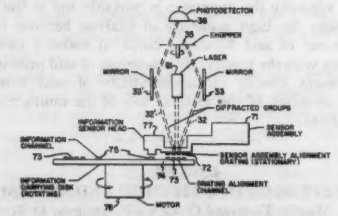
Henry I. Smith, Sudbury, Mass.; Stewart S. Austin, Marlboro, N.J., and Dale C. Flanders, Lexington, Mass., assignors to Massachusetts Institute of Technology, Cambridge, Mass.

Continuation-in-part of Ser. No. 793,259, May 3, 1977, Pat. No. 4,200,395. This application Dec. 26, 1979, Ser. No. 106,842

The portion of the term of this patent subsequent to Apr. 29, 1997, has been disclaimed.

Int. Cl.³ G01B *11/26*

U.S. Cl. 356—356 **3 Claims**



1. Alignment apparatus comprising:

first and second relatively movable plates each having diffraction grating means of the same period for diffracting incident wave energy;

a source of substantially monochromatic wave energy;

means for illuminating with said wave energy the diffraction grating means on said second plate through the diffraction grating means on said first plate to produce at least one pair of diffracted beams of wave energy;

detecting means for detecting the relative intensities of said at least one pair of diffracted beams;

means for carrying an information channel;

means for scanning said information channel;

one of said diffraction grating means being supported in fixed relationship to said means for scanning said information channel;

the other of said diffraction grating means being maintained in fixed relationship with said means for carrying said information channel that is movable relative to said scanning means in a first scanning direction and in a second direction, orthogonal to said first direction;

whereby said one and said other diffraction grating means may be brought into a predetermined relative position representative of said first and second plates being in predetermined alignment.

4,340,306

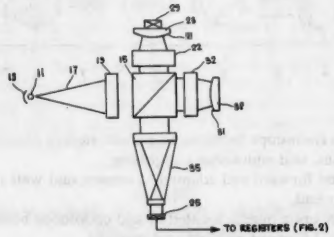
OPTICAL SYSTEM FOR SURFACE TOPOGRAPHY MEASUREMENT

N. Balasubramanian, 20361 Chalet La., Saratoga, Calif. 95070

Filed Feb. 4, 1980, Ser. No. 117,855

Int. Cl.³ G01B *11/24*

U.S. Cl. 356—360 **15 Claims**



1. A non-contacting method for measuring deviations between a reference wavefront representing a reference surface and a test wavefront representing a test surface comprising,

establishing a white light interference pattern on a detector between two wavefronts, one wavefront from at least one point on a reference surface of known topography and another wavefront from a corresponding point on a test surface of unknown topography,

determining positions of maximum fringe contrast of the white light interference pattern thereby establishing zero optical path differences between said wavefronts,

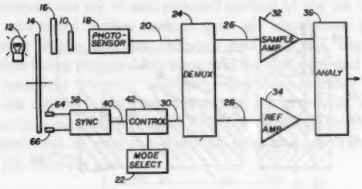
repeatedly translating one of the wavefronts from said surfaces by known incremental distances relative to the detector and establishing other white light interference patterns while establishing zero optical path differences between wavefronts from points on the reference surface and corresponding points on the test surface of unknown topography,

recording the positions in each interference pattern of maximum fringe contrast and the corresponding step of incremental distance of surface translation relative to the starting point for each interference pattern, whereby the points of maximum fringe contrast at a given step represent points, the locus of which defines contours for which there is zero optical path difference between the test surface and the reference surface.

4,340,307
BICHROMATIC SPECTROPHOTOMETER WITH WAVELENGTH REVERSAL

Allen M. Diamond, Huntington Beach, and Richard D. Ratz, Irvine, both of Calif., assignors to Beckman Instruments, Inc., Fullerton, Calif.

Filed Jul. 7, 1980, Ser. No. 166,654
Int. Cl.³ G01J *3/50*; G01N *21/31*
U.S. Cl. 356—418 **8 Claims**



1. A spectrophotometer which analyzes a sample by measuring the relative extents to which light at first and second wavelengths is transmitted through, or absorbed by, the sample comprising:

means for producing a multiplexed electrical signal having a value which alternately represents the relative extents to which light at the first and second wavelengths is transmitted through, or absorbed by, the sample;

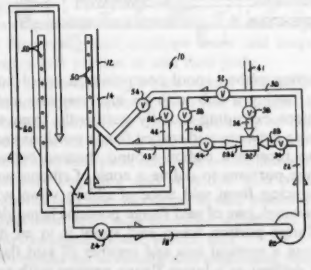
control means for producing a control signal having first and second values, the control means having normal and reverse modes of operation such that in the normal mode the control signal has its first and second values when the multiplexed signal represents transmission or absorption at the first and second wavelengths, respectively, and in the reverse mode the control signal has its first and second values when the multiplexed signal represents transmission or absorption at the second and first wavelengths, respectively; and

a demultiplexer circuit for producing a first output signal proportional to the multiplexed electrical signal during time periods when the control signal has its first value and a second output signal proportional to the multiplexed electrical signal during time periods when the control signal has its second value.

4,340,308
METHOD AND APPARATUS FOR PRODUCING FLUIDIZED LIME

Billy J. Tharp, 514 E. 8th St., Trenton, Mo. 64683

Filed Aug. 1, 1980, Ser. No. 174,351
Int. Cl.³ B01F *5/10*
U.S. Cl. 366—2 **6 Claims**



1. A method of producing fluidized lime comprising the steps of

providing a tank and first and second closed fluid paths each leading from one portion of the tank to another portion thereof;

inserting a fluid medium into the tank;

opening said first path and closing said second path;

pumping the fluid medium through said first path in a manner to effect thorough mixing thereof;

closing said first path and opening said second path;

connecting a lime delivery line with a source of powdered lime and with said second path at a preselected location thereon;

thereafter pumping the fluid medium through said second path in a manner to induce flow of powdered lime through said delivery line to said second path, thereby mixing the powdered lime with the fluid medium to produce fluidized lime which is discharged from said second path into the tank;

opening said first path and closing said second path;

thereafter pumping the fluidized lime through said first path to effect thorough mixing thereof;

closing said first path;

closing said second path downstream from said preselected location and opening said second path upstream of said preselected location;

disconnecting said lime delivery line from said second path;

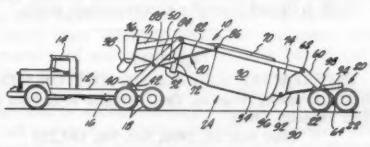
connecting a fluid line with a delivery vehicle and with said second path at said preselected location; and

thereafter pumping the fluidized lime through said second path to said preselected location and from said preselected location through the fluid line to the delivery vehicle.

4,340,309
TRAILER TRANSIT MIXER

Evan S. Prichard, Newport Beach, Calif., assignor to Challenge-Cook Bros., Incorporated, Industry, Calif.

Continuation-in-part of Ser. No. 57,650, Jul. 16, 1979, Pat. No. 4,243,328. This application Jun. 25, 1980, Ser. No. 162,918
The portion of the term of this patent subsequent to Jan. 6, 1998, has been disclaimed.
Int. Cl.³ B28C *5/20*, *5/42*
U.S. Cl. 366—62 **12 Claims**



1. In a trailer transit mixer for use with a truck having a fifth wheel assembly, the improvement comprising, a mixer drum assembly including a rotatable mixer drum with an open end, a trailer wheel assembly having means supporting one end of said mixer drum assembly, means supporting the other end of said mixer drum assembly on the truck fifth wheel assembly, at least one of said supporting means selectively operable to shift the longitudinal position of said drum forward and rearward relative to the truck, the selective operation of said supporting means to the forward position causing the said open end of said mixer drum to be elevated substantially for allowing discharge of the contents of said mixer drum while permitting forward, rearward and turning movement of the truck in all directions.

4,340,310
CONTROL MECHANISM FOR A GRAIN BIN STIRRING APPARATUS

Donald Y. Clark, R.R. #1, Central City, Nebr. 68826

Filed Aug. 19, 1981, Ser. No. 294,270
Int. Cl.³ B01F *7/24*, *7/30*
U.S. Cl. 366—261 **8 Claims**

1. In a grain bin stirring apparatus having a radially extended

horizontal down auger support member for arcuate movement about the bin center, a mechanism for controlling said movement, comprising:

a mercury switch connected in series with the motor which supplies power for said arcuate movement;

a carrier for fixedly holding said switch having a first end pivotally attached to the structure to which an auger is journaled and a second end extending over and past the center of the pulley of said auger;

a weight slidably and radially mounted atop said pulley between its center and its periphery, its end adjacent the center of said pulley sloped to face upwardly;

means connected to said weight for biasing it against centrifugal force when said pulley revolves; and

a vertically oriented link having a lower end resting on said sloped end of said weight and an upper end supporting said carrier at an attitude with respect to the horizontal which will not allow current to flow through said motor unless said auger pulley revolves above a pre-determined rate, the vertical orientation of said link being maintained by means attached to said structure to which the auger is journaled for slidable support, whereby the current will be interrupted even though said pulley is revolving above said rate if the structure to which the auger is journaled, itself, is tipped beyond a predetermined angle.

4,340,311

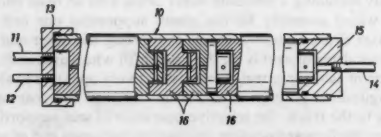
INTERFACIAL SURFACE GENERATOR MIXER

Edwin L. Crandal, Houston, Tex., assignor to Zebron Corporation, Tualatin, Oreg.

Filed Sep. 26, 1980, Ser. No. 191,255

Int. Cl.³ B01F *5/06*

U.S. Cl. 366—336 **2 Claims**



1. An interfacial surface generator mixer comprising a housing having an inlet and an outlet and a plurality of mixing elements in end-to-end relationship in the housing, each member having a cavity in one end and a protuberance on the opposite end that extends into the cavity in the adjacent member to form a passageway between the outside surface of the protuberance and the cavity and a passageway between the end of the protuberance and the bottom of the cavity, a central blind end passageway along the longitudinal axis of each member having one end connected to the space between the end of the protuberance and the cavity and a plurality of equally spaced, radially extending passageways connecting the central passageway adjacent its blind end to the passageway between the outside surface of the protuberance and the cavity.

4,340,312

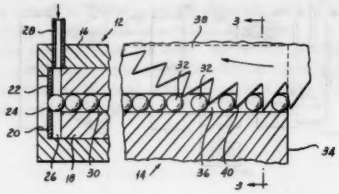
BARRELLESS GUN FOR MICROBALLISTIC PRINTER

Benzion Landa, Edmonton, Canada, assignor to Savin Corporation, Valhalla, N.Y.

Filed Sep. 24, 1980, Ser. No. 190,368

Int. Cl.³ B41J *3/02*

U.S. Cl. 400—118 **7 Claims**



5. In a microballistic printer for firing solid balls toward a printing medium, apparatus including means forming a resilient breech for releasably holding a ball, means for feeding a ball to said breech from one side thereof, means for forming a pressurized region on said side of said breech to exert a force on said ball tending to urge said ball through said breech, said breech so oriented that said force is directed toward said medium, and means for overcoming the releasable holding action of said breech to allow pressure from said region to propel said ball toward said medium, the space immediately on the other side of said breech being open and extending to said medium so that no element of structure affects the flight of a ball leaving said breech.

4,340,313

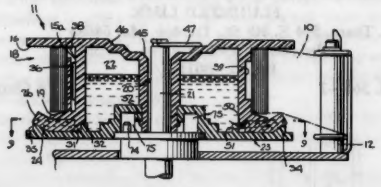
BUSINESS MACHINE PRINTING RIBBON SPOOL APPARATUS AND METHOD OF INKING THE TYPE SLUG IMPACT PORTION OF PRINTING RIBBONS

John W. H. Bishop, Milltown, N.J., assignor to Ibex Inking Systems Corp., Edison, N.J.

Continuation-in-part of Ser. No. 703,261, Jul. 2, 1976, abandoned. This application Dec. 20, 1978, Ser. No. 971,324

Int. Cl.³ A41J *31/14*

U.S. Cl. 400—202.1 **48 Claims**



1. A printing ribbon spool comprising a spool body, said spool body having a hub with an ink reservoir and spaced flange portions extending radially outwardly from said hub, said hub being between said spaced flange portions and having a surface to receive a ribbon wound thereon between said spaced flange portions to define a zone of ribbon wrap, said ribbon advancing from said zone of ribbon wrap when said spool is unwound, one of said flange portions being defined as an upper flange portion when said spool is in an operating position about a vertical axis and another of said flange portions being defined as a lower flange portion with respect to said upper flange portion when said spool is in said operating position, said ribbon having an upper portion corresponding to the upper flange portion and a lower portion corresponding to

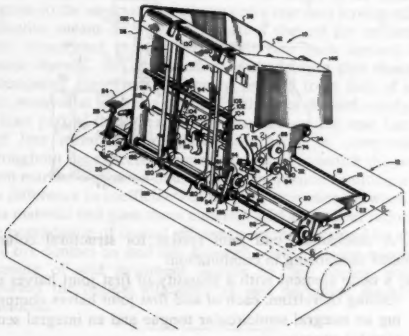
the lower flange portion, an ink delivery pad at said lower flange portion as the sole ink delivery means for said spool, said ink delivery pad having an exposed portion in the path of the advancing ribbon to contact said lower portion of said ribbon as said ribbon advances therepast, said lower flange portion being disposed below the zone of ribbon wrap on the spool, said lower flange portion including support means for supporting said exposed portion of the ink delivery pad in the path of ribbon advance, said ink delivery pad communicating in ink receiving relation with the ink reservoir to receive ink from said ink reservoir when said spool is in said operating position and convey the ink to said exposed portion of the ink delivery pad, said spool further including an ink impervious member disposed above said ink delivery pad, said ink impervious member being disposed between said ink delivery pad and the link reservoir whereby said ink impervious member isolates said ink delivery pad from ink in the ink reservoir, said ink impervious member having at least one opening there through to permit ink to pass therethrough from the ink reservoir to said ink delivery pad.

4,340,314

ENVELOPE FEEDING APPARATUS

Michael A. Berger, Richardson, Tex., assignor to Datamarc, Inc., Richardson, Tex.

Filed Jun. 24, 1980, Ser. No. 162,590
Int. Cl.³ B41J *11/58*
U.S. Cl. 400—625 **43 Claims**



1. A feeding apparatus for discrete pieces of sheet material such as envelopes for use in connection with a printer having an independently operable rotating platen, said feeding apparatus comprising:

magazine means for holding a plurality of stacked envelopes and including an outlet through which said envelopes may be serially dispensed along a feed path leading to said platen;

means engageable with an envelope in said magazine means for dispensing said envelope from said magazine means along a first portion of said feed path;

holding means defining a part of said feed path for holding said envelope dispensed from said magazine means;

feed means operable in time relationship to the rotation of said platen for feeding said envelope along a second portion of said feed path, said feed means including means for positively engaging said envelope held by said holding means to feed said envelope to said platen and releasing engagement with said envelope when said envelope becomes engaged by said platen; and

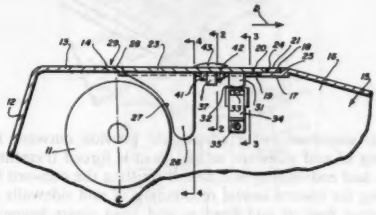
control means for actuating said dispensing means in timed relation to the operation of said feed means for dispensing an envelope from said magazine means to said holding means.

4,340,315

PRINTING AREA COVER PLATE FOR TYPEWRITERS OR LIKE MACHINES

Friedrich Teichmann, Feucht, and Karl Wenderoth, Bad Vilbel, both of Fed. Rep. of Germany, assignors to Adlerwerke vorm Heinrich Kleyer A.G., Frankfurt, Fed. Rep. of Germany

Filed Oct. 9, 1980, Ser. No. 195,398
Claims priority, application Fed. Rep. of Germany, Mar. 8, 1980, 3009001
Int. Cl.³ B41J *29/08, 29/38*
U.S. Cl. 400—690.4 **3 Claims**



1. In a typewriter or like machine having a platen and a top casing defining an access opening to the printing area forward of said platen,

said top casing having side walls supporting a power on-off switch and detent structure,

a cover plate removably mounted on said top casing for closing said access opening except for a paper exit slot substantially opposite the vertical center line of said platen,

said cover plate having detent structure depending therefrom complimentary to the detent structure on said top casing,

said mounted cover plate being slidably movable relative to said top casing between a detented locked position and an unlocked removable position,

said complimentary detent structures on said top casing and said cover plate being engaged and disengaged when said cover plate is moved from unlocked to locked position and from locked to unlocked position respectively,

said cover plate including means for facilitating sliding movement of said cover plate between locked and unlocked positions,

said cover plate having switch actuating means depending therefrom for slidingly engaging and actuating said power on-off switch to on position incident to movement of said mounted cover plate to locked position, and to off position incident to movement of said cover plate to unlocked position,

said cover plate further having on its underside a plurality of depending paper hold down guides spaced along the axis of said platen extending from said exit slot forwardly of said platen in planes perpendicular to said platen and having edges facing and spaced from said platen whose curvature follows the curvature of said platen, and

said cover plate at the edge thereof defining said exit slot having an acute angle.

4,340,316

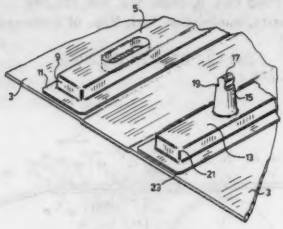
BINDING SYSTEM

Gerhard Jahn, 896 Queen St. West, Toronto, Ontario, Canada (M6J 1G6)

Filed Aug. 4, 1980, Ser. No. 162,445
Int. Cl.³ B42F *13/12*
U.S. Cl. 402—68 **13 Claims**

1. A binding system comprising a post provided with a head projecting from one side of said system and an opening having a blind ended mouth surrounded by opposing sidewalls and endwalls for releasably securing the head of said post at the

other side of said system, said mouth being narrow and elongated relative to said head, said head being stiff for forceably opening said mouth during insertion therein and removal therefrom and having a base which is undercut only at its sides for receiving said sidewalls of said mouth when locked therein,



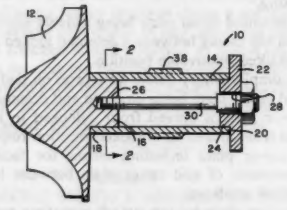
the arrangement being adapted to provide outward lateral flexing of said sidewalls as said head is forced therethrough, with said endwalls of said mouth resisting the outward lateral flexing for inward lateral rebounding of said sidewalls at the undercut base of said head as said head clears beyond said sidewalls and is releasably secured within said opening.

4,340,317

SPLINELESS COUPLING MEANS

Arnold M. Heitmann, Swampscott, and Richard E. Lord, Jr., Randolph, both of Mass., assignors to Northern Research & Engineering Corp., Woburn, Mass.

Filed May 7, 1981, Ser. No. 261,730
Int. Cl.³ F16D *1/06*; F16B *35/00*
U.S. Cl. 403—25 **3 Claims**



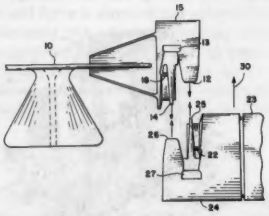
1. In combination, splineless coupling means, comprising:
an imperforate first member, rotatable about an axis, engageable with a second member for transmission of rotation therebetween from one of said members to the other thereof; wherein
said first member has a prominent structure, defining a boss or hub or the like;
said structure is of non-circular cross-section, and has a peripheral surface, circumjacent said axis; and
a second member, also rotatable about said axis, engageable with said first member for transmission of rotation therebetween, as aforesaid; wherein
said second member has a void formed therein defined by an inner surface of a circumscribing wall; and
said inner surface has a non-circular conformation, corresponding to said non-circular cross-section, for defining an intimate[r]-interfaced coupling engagement thereof with said cross-section; and
means for securing said wall and structure together in fast coupled engagement; wherein
said second member is an elongate element;
said element is hollow fully throughout the length thereof;
said structure has a threaded bore formed therein;
said securing means comprises (a) an apertured thrust collar for engaging a first end of said second member and (b) a headed bolt for penetrating and engaging said collar, extending through said hollow toward the opposite end of said second member, and threadedly engaging said bore;
said collar has a substantially annular land formed thereon for engaging said first end of said second member; and
said land is of non-circular cross-section, corresponding to said non-circular conformation of said inner surface of said second member to define an intimately-interfaced coupling engagement thereof with said inner surface.

4,340,318

MECHANICAL END JOINT SYSTEM FOR STRUCTURAL COLUMN ELEMENTS

Robert A. Frosch, Administrator of the National Aeronautics and Space Administration, with respect to an invention of; Harold G. Bush, Yorktown, and Richard E. Wallsom, Newport News, both of Va.

Filed Dec. 5, 1979, Ser. No. 100,611
Int. Cl.³ F16D *1/00, 3/00*
U.S. Cl. 403—217 **7 Claims**

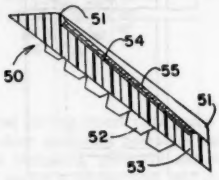


1. A mechanical end joint system for structural column elements comprising in combination:
(a) a node element with a plurality of first joint halves extending therefrom, each of said first joint halves comprising an integral semicircular tongue and an integral semicircular groove;
(b) a plurality of strut elements having second joint halves on the ends thereof adapted to mate with said first joint halves, each of said second joint halves also comprising an integral semicircular tongue and an integral semicircular groove;
(c) said integral semicircular tongue and integral semicircular groove of each of said first joint halves of said node element corresponding to said integral semicircular tongue and integral semicircular groove of each of said second joint halves of said plurality of strut elements; and
(d) locking means and lock retention means disposed on each of said first and said second joint halves;
whereby a force transverse to the axis of one of said plurality of strut elements joins said strut element to said node element by mating said integral semicircular tongue to one of said second joint halves of said strut element with said integral semicircular groove of one of said first joint halves of said node element, and by mating said integral semicircular groove of said one of said second joint halves of said strut element with said integral semicircular tongue of said one of said first joint halves of said node element, and locks said strut element to said node element by each of said locking means on one joint half serving to engage said lock retention means on the mating joint half.

4,340,319
PAVEMENT MARKER

Glenn W. Johnson, Jr., Summit, N.J., and Sidney A. Heenan, Park Ridge, Ill., assignors to Amerace Corporation, New York, N.Y.

Continuation of Ser. No. 970,186, Dec. 18, 1978, Pat. No. 4,232,979, which is a continuation of Ser. No. 789,266, Apr. 20, 1977, abandoned, which is a continuation-in-part of Ser. No. 681,860, Apr. 30, 1976, abandoned. This application Nov. 10, 1980, Ser. No. 205,752
Int. Cl.³ E01F 9/06
U.S. Cl. 404—16 3 Claims



1. In a pavement marker providing a marking on a roadway surface, the marking being visible from an oncoming vehicle on the roadway, the pavement marker including means to position the marker relative to the associated roadway surface, and including a lens member of light-transmitting synthetic resin having a front face inclined at an angle of at least 15 degrees to the associated roadway and a rear face having reflex reflective means on at least a portion thereof for reflecting light transmitted through said front face back toward the source thereof, the improvement comprising a thin sheet of untempered glass fixedly disposed on said front face of said lens member at least in a portion of the area thereof overlying at least part of the reflex reflective means on the rear face of said lens member, said glass sheet being in compression throughout the expected temperature range to which the pavement marker is exposed in use, said compression resulting from the difference in coefficients of thermal expansion between the lens material and glass sheet material, said glass sheet reducing the degradation of optical efficiency normally caused by abrasive tire contact on said lens member while allowing adequate cleaning of said pavement marker by tire wiping action, whereby the optical efficiency of said pavement marker is enhanced.

4,340,320
DRIVE MECHANISM

Robert E. Moss, Yorkville, Ill., assignor to Caterpillar Tractor Co., Peoria, Ill.

PCT No. PCT/US80/00904, § 371 Date Jul. 14, 1980, § 102(e) Date Jul. 14, 1980, PCT Pub. No. WO82/00309, PCT Pub. Date Feb. 4, 1982
PCT Filed Jul. 14, 1980, Ser. No. 261,231
Int. Cl.³ E01C 19/26
U.S. Cl. 404—122 11 Claims

8. Apparatus (10), comprising:

a frame (18);

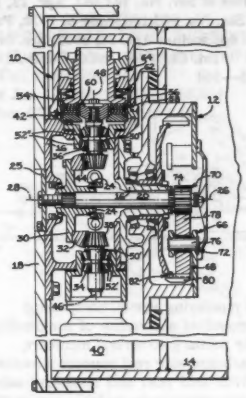
a driven member (14) having an axis of rotation (28);

a first element (20) having an axis of rotation (26) and being carried by and rotatable relative to said frame (18), said axis of rotation (26) of said first element (20) being substantially the same as said axis of rotation (28) of said driven member (14);

a bevel gear (32) mounted on and rotatable with said first element (20) about said axis of rotation (26) of said first element (20);

means (34) for engaging and rotating said bevel gear (32), said means (34) including a pinion gear (38) and being carried by said frame (18), said pinion gear (38) defining an axis of rotation (46) oriented perpendicular to said axis of rotation (26) of said first element (20) and being positioned in engagement with said bevel gear (32);

means (36) for engaging and controllably blocking from rotation said bevel gear (32), said means (36) including a different pinion gear (44) and being carried by said frame (18), said pinion gear (38) defining an axis of rotation (48)



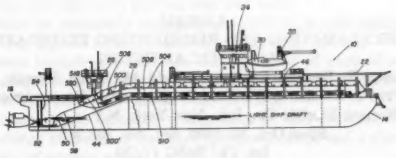
oriented perpendicular to said axis of rotation (26) of said first element (20) and positioned in engagement with said bevel gear (32); and

final drive means (66) for receiving rotational motion from said first element (20) and rotatably driving said driven member (14) in response to said rotational motion, said final drive means (66) having a preselected drive ratio.

4,340,321
OIL BOOM FOR OPEN SEA SKIMMER BARGE

Ashok K. Maheshwary, Houston, Tex., and William M. Ayers, Duncan, Okla., assignors to Halliburton Company, Duncan, Okla.

Filed Jun. 19, 1980, Ser. No. 161,236
Int. Cl.³ E02B 15/04
U.S. Cl. 405—66 17 Claims



1. An apparatus for collecting and containing oil and the like on the surface of the water, said apparatus comprising:

a plurality of float means adapted to float on said surface of the water;

float line means interconnecting said plurality of float means;

support means secured to each float means of said plurality of float means;

wheel means located on said support means;

impermeable apron means having one edge thereof secured to said plurality of float means;

permeable apron means having one edge thereof secured to another edge of said impermeable apron; and

apron line means secured to another edge of said permeable apron.

4,340,322

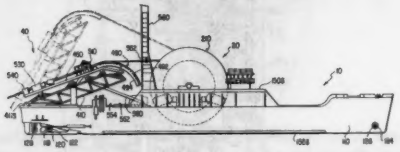
SELF PROPELLED DYNAMICALLY POSITIONED REEL PIPE LAYING SHIP

Charles N. Springett, Santa Ana; Dan Abramovich, Mission Viejo; Stanley T. Uyeda, Orange, and E. John Radu, Fountain Valley, all of Calif., assignors to Santa Fe International Corporation, Orange, Calif.

Continuation of Ser. No. 142,887, Apr. 23, 1980, which is a division of Ser. No. 903,180, May 5, 1978, Pat. No. 4,230,421. This application Apr. 28, 1981, Ser. No. 258,325

Int. Cl.³ F16L *1/00*; B63B *35/04*

U.S. Cl. 405—168 30 Claims



1. A reel pipelaying vessel, comprising:

a hull composed of a plurality of longitudinal port and starboard side primary structural members;

port and starboard side reel support structures extending upwardly from said port and starboard side primary vessel structural members in the midship section thereof to increase the section modulus of the vessel in the midship section;

a pipe-carrying reel;

bearing means mounting the reel for rotation about a substantially horizontal axis across the vessel's beam; and

bearing support means mounting the bearing means to the respective reel support structures and distributing the load of the reel downwardly and longitudinally outwardly through said reel support structures and primary ship structural members to maintain the stress on the vessel's primary structural members within the maximum allowable stress limits for the materials used in the construction of the vessel's primary structural members;

wherein the distance (in feet) from the center of gravity of the vessel to its transverse metacenter is no greater than about $0.00194B^2$, where B is the beam (in feet) of the vessel; and

wherein the GMT of the vessel lies within the shaded portion of the graph shown in FIG. 17 of the drawing,

where GMT represents the vertical distance (in feet) from the center of gravity to the transverse metacenter of the vessel, and BEAM represents the beam or width of the vessel (in feet).

4,340,323

DECELERATING AND REORIENTING ELONGATED MAGNETIC ARTICLES

Kristen E. Bankes, Reading; Donald M. Large, Temple, and Fred J. Reinhard, Whitfield Reading, all of Pa., assignors to Western Electric Co., Inc., New York, N.Y.

Filed Oct. 30, 1980, Ser. No. 202,285

Int. Cl.³ B65G *11/20*

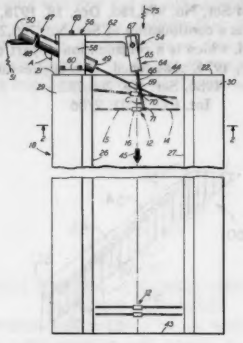
U.S. Cl. 406—83 17 Claims

1. Apparatus for decelerating and reorienting an elongated magnetic article having an enlarged, generally central, body portion, which article is moving in a longitudinal direction, comprising:

a bin assembly for holding at least one such article, having first and second ends and first and second sidewalls including magnetic means to orient the article transversely of the sidewalls;

means for guiding the moving article in a longitudinal direction on a path forming a given angle with the first sidewall of the bin, a discharge end of such guiding means being disposed at the first sidewall such that the moving article is discharged therefrom toward the second sidewall; and

deceleration means spaced from the discharge end of the guiding means, including a vertical bar with a row of deceleration elements extending therefrom toward the first end of the bin, said row of elements forming a penetrable restraint such that a first portion of the moving article discharged from the guiding means penetrates



between the elements and the body is slidably restrained therealong as the article advances out of the elements and further into the bin, said article being rotated by the magnetic means to an orientation transversely of the bin.

4,340,324

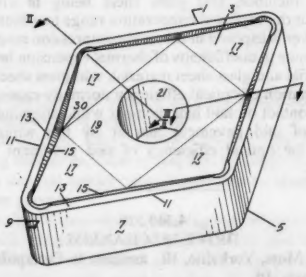
CUTTING INSERT

James F. McCreery, Latrobe, Pa., assignor to Kennametal Inc., Latrobe, Pa.

Filed Aug. 28, 1980, Ser. No. 181,965

Int. Cl.³ B26D *1/00*

U.S. Cl. 407—114 11 Claims



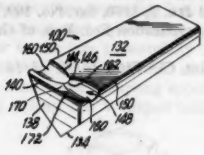
1. A cutting insert which comprises: a polygonal body having top and bottom faces and a peripheral wall with rounded corners joining said top and bottom faces; cutting edge means formed at the juncture of said peripheral wall and at least one of said top and bottom faces; said cutting edge means comprising at least two angularly related cutting edges defining a plane with said rounded corners joining said cutting edges to one another; a land area joining said cutting edge and extending inwardly of said polygonal body; a descending wall that extends away from, and is joined to said land area, forms a first acute included angle with the plane of said cutting edges and terminates in a sloping floor area that descends as said sloping floor extends inwardly of said body and forms a second acute included angle with said plane defined by said cutting edges, said first included angle being greater in said corner than in areas away from said corner, and the perpendicular distance from the plane of said cutting edges to the point where the descending wall joins the sloping floor being smallest in the corner and greatest intermediate the adjacent corners.

4,340,325

CUTTING INSERT FOR DEEP GROOVING

Thomas W. Gowanlock, Rochester, Mich., assignor to General Electric Co., Detroit, Mich.

Filed Dec. 23, 1980, Ser. No. 220,244
Int. Cl.³ B26D 1/00
U.S. Cl. 407—116 7 Claims



1. An improved cutting insert configured for controlling chips during a deep grooving operation, said insert being formed from an elongated, generally rectangular block of cutting material having a cutting end, said block including a straight cutting edge, disposed perpendicular to the longitudinal axis of said block and defined by the juncture between one side edge of said cutting end, and one longitudinally extending surface of said rectangular block, said one surface corresponding to the leading surface of said insert, said improvement comprising:

a V-shaped ridge formed in said leading surface and spaced from said cutting edge, with an apex portion of said V-shaped ridge being disposed closest to said cutting edge;

a groove formed in said leading surface contiguous with said V-shaped ridge and extending towards said cutting edge,

a planar land area formed on said leading surface and disposed between and contiguous with said cutting edge and said groove,

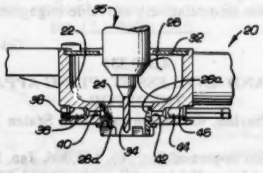
wherein said improvement is operative to reduce the length and width of chips during a grooving operation.

4,340,326

BROKEN BIT DETECTOR

Andrew Buonauro, Mission Viejo, and Richard Warner, Laguna Hills, both of Calif., assignors to Cooper Industries, Inc., Houston, Tex.

Filed Feb. 25, 1980, Ser. No. 124,456
Int. Cl.³ B23B 47/24; B23C 9/00
U.S. Cl. 408—16 9 Claims



1. A broken bit detector for use in a drilling machine that includes a drill spindle which carries a drill bit, comprising:

a pressure foot adapted to be connected to the drill spindle, said pressure foot serving to clamp a workpiece into a fixed position with respect to the drill spindle and including a central opening through which a drill bit extends;

a light emitting element having a surface positioned on one side of said opening;

a light receiving element having a surface positioned on a side of said opening opposite from the light emitting element to receive a light beam therefrom, wherein a drill bit when in position lies in the path between the light emitting element and light receiving element and interception of the light beam indicates the presence of an unbroken drill bit; and

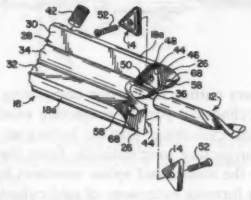
means for directing a fluid across the surfaces of the light emitting and light receiving elements to thereby shield said elements from abrasive debris created by a drilling operation.

4,340,327

TOOL SUPPORT AND DRILLING TOOL

Jose Martins, New Bedford, Mass., assignor to Gulf & Western Manufacturing Co., Southfield, Mich.

Filed Jul. 1, 1980, Ser. No. 165,864
Int. Cl.³ B23B 51/06, 51/08
U.S. Cl. 408—59 9 Claims



1. A drill tool comprising:

a tool support having an axis and coaxial mounting and body portions, said body portion extending from said mounting portion and having an outer end including a pair of end faces;

a pair of diametrically opposed channels defined by said body portion and extending from said end faces towards said mounting portion;

each channel including corresponding first and second walls extending radially of said axis and axially of said body portion;

each of said first and second walls of said channels having radially inner and outer linear edges extending from said outer end toward said mounting portion and parallel to said axis;

a pair of diametrically opposed third walls defined by said body portion and extending axially thereof, each of said third walls extending respectively between said radially inner edges of the corresponding first and second walls;

a passageway within said body portion and coaxial with said axis;

a drill bit mounted within said passageway and including a tip end extending beyond said end faces;

means for releasably engaging said drill bit in said passageway against rotation relative to said body portion;

means including a recess in said first wall of each of said channels for removably supporting a pair of cutter blades at said outer end of said body portion;

a cutter blade mounted within each of said recesses, said cutter blades each having a polygonal shape and a plurality of cutting edges;

said recesses each including shoulder means interengaging with the corresponding one of said cutter blades to axially position one of the cutting edge thereof forwardly adjacent to the corresponding one of said end faces;

said cutter blades and said shoulder means including cooperating surfaces allowing said cutter blades to be indexable thereon so that any one of said cutting edges may be projected forwardly with respect to said end face;

a portion of said cutter blades extending within the outside diameter of said drill bit;

a pair of relief surfaces defined in said body portion, each inclined with respect to said axis and intersecting one of said end faces and said second and third walls of said corresponding channel; and

a pair of lubricant passages extending through said body

portion and having respective outlets at said respective end faces.

4,340,328

ROTARY CUTTING TOOL AND TOOL DRIVER

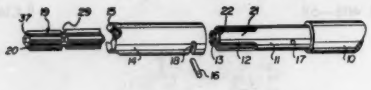
Sylvester E. Proulx, and Stanley A. Beneteau, both of Windsor, Canada, assignors to J. P. Tool, Ltd., Windsor, Canada

Continuation of Ser. No. 28,725, Apr. 9, 1979, abandoned. This application Aug. 4, 1980, Ser. No. 175,290

Claims priority, application Canada, Mar. 16, 1979, 323670

Int. Cl.³ B23B *31/10, 31/44, 5/22*

U.S. Cl. 408—239 A 45 Claims



1. A rotary cutting tool driver comprising a shank member having a cylindrical portion projecting axially from one end thereof, said cylindrical portion having at least two spline members projecting longitudinally from the end thereof remote from the shank, said spline members having curvilinear outer faces forming extensions of said cylindrical portion and projecting inwardly to provide a central axial gap and radial gaps therebetween, and a cylindrical sleeve member rotatably mounted on said cylindrical portion and splines, said sleeve member having at the outer end thereof inwardly projecting tab members adapted to engage notches in peripheral lands of a fluted cutting tool when mounted in the driver.

4,340,329

LASHING DEVICE

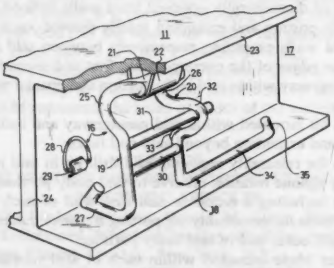
Sven O. Ericsson, Barkassviken 38, Onsala, Sweden (43034)

Filed Oct. 21, 1980, Ser. No. 199,259

Claims priority, application Sweden, Nov. 5, 1979, 7909127

Int. Cl.³ A44B *21/00;* B60P *7/08;* B61D *45/00*

U.S. Cl. 410—100 8 Claims



1. A device for securing a load to a platform and comprising a lever structure swingably mounted at said platform by means of a pivot parallel to a side of the platform,

said lever structure, in order to make possible the use of a strapping band, including two substantially parallel rods, spaced apart a distance at least corresponding to the breadth of the strapping band, and mounted at the pivot,

two parallel bars carried by said rods, arranged parallel to the pivot at a distance from the latter, the bar, which in locking position will be the uppermost one, being attached to one of the rods only, and sidewardly extending past the other rod, said other rod, opposite to the passing free bar being formed with a bent portion, partly encircling the said bar for permitting a loop of the band to be slipped upon the bar from the free end thereof, and

locking means at said platform for retaining said lever structure in locked position.

4,340,330

STRADDLING DOWEL

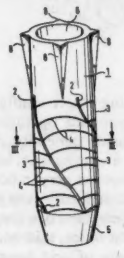
Josef Reidel, Bodman-Ludwigshafen, Fed. Rep. of Germany, assignor to Tox-Dubel-Werk Richard W. Heckhausen KG, Bundesrepublik, Netherlands

Filed Jan. 7, 1980, Ser. No. 109,765

Claims priority, application Fed. Rep. of Germany, Jan. 12, 1979, 2901066

Int. Cl.³ F16B *14/10, 13/14*

U.S. Cl. 411—33 12 Claims



1. A straddling dowel, of plastic, including a body with a circular head portion and a circular foot portion, the body having a continuous longitudinal screw insertion hole, the body being comprised of several expansion segments arrayed around the body that are formed by longitudinal slits formed in the dowel body and each of which is integral from and extends from the circular head portion to the circular foot portion of the dowel, the insertion hole in the foot portion being shaped and sized so that a female thread can be cut in the portion by the inserted screw, thereby rendering axial contraction of the dowel body possible, each of the expansion segments being comprised of a longitudinal array of overlapping plates, each of the plates being separated from the next adjacent overlapping plates, and adjacent plates having engageable contact surfaces located longitudinally above and below the respective plates, each contact surface extending generally around the dowel body, the engageable contact surfaces each being directed to extend obliquely to the axis of the dowel and being near enough to the adjacent contact surfaces that radially applied force against the dowel body presses the adjacent contact surfaces into relatively movable engagement.

4,340,331

STAPLE AND ANVILESS STAPLING APPARATUS THEREFOR

Dominick J. Savino, 65 Buttonwood Rd., Staten Island, N.Y. 10304

Continuation-in-part of Ser. No. 115,066, Jan. 24, 1980, abandoned, which is a division of Ser. No. 23,827, Mar. 26, 1979, Pat. No. 4,206,863. This application May 19, 1980, Ser. No. 151,136

Int. Cl.³ F16B *15/00*

U.S. Cl. 411—457 6 Claims

1. A staple adapted for use in conjunction with an anviless stapling apparatus, said apparatus including a nosepiece including an elongated drive track of fixed configuration formed integrally therein and extending therethrough, said drive track having an outwardly open lower end disposed adjacent a workpiece into which the staple is driven, said drive track including an elongated crown receiving portion and a pair of elongated leg receiving grooves contiguous with said crown receiving portion and extending therefrom, the width of said leg receiving grooves, in a direction orthogonal to the plane of

the drive track, being greater than the width of the crown receiving portion adjacent said leg receiving grooves, the lower portions of said leg receiving grooves being disposed at an angle to the longitudinal axis of said drive track, and a driver element slidably mounted for reciprocal movement in the crown receiving portion of said drive track, said staple comprising:

a generally U-shaped, plan form configuration including a crown unitary with two depending legs extending perpendicular thereto, said crown portion having a cross section perpendicular to the legs substantially corresponding to the configuration of the cross section of the crown receiving portion of the anviless stapling apparatus, each staple leg including at least one V-shaped bend, said V-shaped

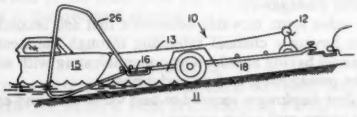
bend projecting out of the plane of the U-shaped plan form of the staple in an orthogonal direction so as to give each leg an effective width greater than the width of each end of the crown portion adjacent to said leg portion, the cross-sectional area of said crown portion being substantially equal to the cross-sectional area of the unbent portions of each said leg, said legs being slidably receivable within the leg receiving grooves in said anviless stapling apparatus such that upon downward actuation, said driver element bears upon the crown of the staple thereby causing the staple to move through the drive track towards the workpiece and simultaneously causing the legs of the staple to be guided into the angularly disposed portions of said leg receiving grooves to achieve clinching of the staple legs for binding the workpiece.

4,340,332

BOAT CENTERING DEVICE

Ernest L. Davies, 2 Russell St., Newtown, Geelong, Victoria, 3220, Australia

Filed Sep. 2, 1980, Ser. No. 183,445
Claims priority, application Australia, Sep. 26, 1979, PE0691
Int. Cl.³ B60P *3/10*
U.S. Cl. 414—467 **8 Claims**



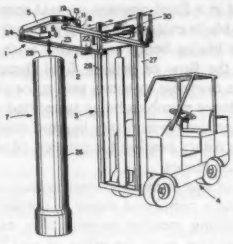
7. A bracket for pivotally supporting a vertically swingable frame of a boat centering boom gate on the side of a boat trailer having side members during movement of said frame between a retracted forward road transport position alongside said trailer and a rearwardly extended docking position out over water and alongside a floating boat, said bracket being of U-shaped configuration and comprising two short arms connected by an elongate arm, the base of each short arm being adapted to be fixed to one said side member of said boat trailer, one short arm being an axle which provides pivotal support for a bearing member fixed transversely to said swingable frame at one corner thereof.

4,340,333

CONCRETE PIPE HANDLING APPARATUS

R. Kent Cashio, Rte. 6, Box 387, Baton Rouge, La. 70815

Continuation-in-part of Ser. No. 737,187, Nov. 1, 1976, abandoned. This application Oct. 28, 1977, Ser. No. 846,547
Int. Cl.³ B66F *9/12*
U.S. Cl. 414—607 **3 Claims**



1. An apparatus for moving non-cured concrete pipe of particular diameter and attachable to a lifting means of a vehicle which comprises:

(a) a frame assembly attached to said vehicle, and

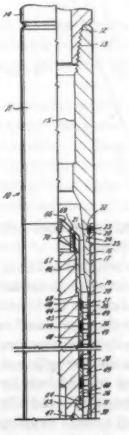
(b) an open ring plate pivotedly mounted to said frame assembly, said open ring plate formed by a single side member of said plate to form a center cavity having a diameter greater than said pipe and sufficient to pass over said pipe without contacting said pipe, said side member extending less than completely about said pipe but extending around said pipe to create an opening less than said pipe's diameter.

4,340,334

TURBODRILL WITH RUBBER ROTOR BEARINGS

Jeddy D. Nixon, Houston, Tex., assignor to Maurer Engineering, Inc., Houston, Tex.

Filed Jan. 30, 1980, Ser. No. 116,913
Int. Cl.³ F01D *25/16*
U.S. Cl. 415—172 A **6 Claims**



1. A turbodrill adapted for connection at one end to the lower end of a drill string and at the other end to a drill bit to be driven thereby, comprising

a tubular housing having an upper stator portion and a lower bearing portion,

a stator comprising a plurality of fixed stator members in said stator portion,

said fixed stator members each comprising an outer and inner sleeve member with a stator blade extending radially therebetween,

a rotor shaft extending through said stator portion,

a plurality of rotor members, each comprising a sleeve member supported in a fixed position on said rotor shaft and having a turbine blade extending radially therefrom,

said turbine blades being cooperable with said stator blades whereby the flow of drilling fluid through said turbodrill housing is operable to rotate said rotor shaft,

said rotor sleeve members being supported one in each of said stator inner sleeves in rotary bearing relation therewith and forming a rotary bearing for rotation of said rotor shaft and said turbine blades,

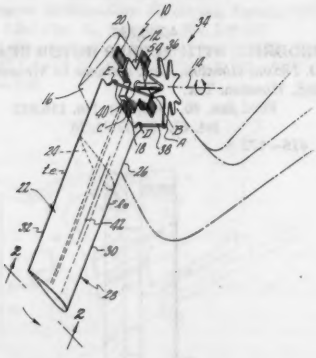
at least one of said sleeve members in each of said rotary bearings having a peripheral recess in the surface thereof and a rubber bearing member supported in each such recess in bearing relation with the other of said sleeve members of such rotary bearing, and

said rubber bearing members each having passages in the bearing surfaces thereof operable to conduct drilling fluid into the space of rotary bearing contact to cool and lubricate the rotary bearing surfaces.

4,340,335
HELICOPTER TAIL ROTOR WITH PITCH CONTROL MECHANISM

Marvin C. Cheney, Glastonbury, Conn., assignor to United Technologies Corporation, Hartford, Conn.

Filed Dec. 17, 1979, Ser. No. 104,604
Int. Cl.³ B64C 27/38, 27/78
U.S. Cl. 416—138 10 Claims



1. A helicopter anti-torque tail rotor rotatable about an axis of rotation and comprising:

(A) a hub member adapted to be supported from a helicopter tail section for rotation about said axis of rotation,

(B) at least one helicopter blade extending radially from said hub for rotation therewith and including,

(1) a torsionally flexible structural spar fabricated to have substantial tensile strength and high torsional flexibility and connected to said hub for rotation therewith and projected substantially radially therefrom,

(2) a blade airfoil section enveloping said spar and having a leading edge, a trailing edge, a tip end, and a root end,

(3) a hollow torque tube enveloping the spar in spaced relationship and forming the blade root end,

(4) means connecting said torque tube outer end to said flexible spar at a radial station therealong so that blade pitch motion between minimum pitch and maximum pitch positions is permitted due to torsional flexure of the spar,

(C) pitch control means mounted for rotation with said hub and including:

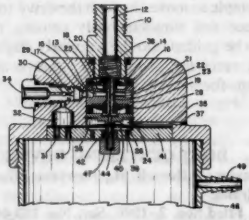
(1) a control wheel member mounted for rotation concentrically about and extending perpendicular to said axis of rotation and positioned in spaced axial relationship to the torque tube inner end,

(2) first and second push-pull rods extending between and pivotally connected to said control wheel member at circumferentially spaced stations thereon and with the opposite ends of the first and second push-pull rods pivotally connected, respectively, to the leading edge and the trailing edge of the torque tube inner end at stations spaced a substantially greater distance than the circumferentially spacing of the push-pull rods on the control wheel members, said rods being oriented so that one of push-pull rods extends substantially parallel to said axis of rotation when the blade is in its minimum pitch position and so that the other of said push-pull rods forms a substantial angle with said axis of rotation, so that as the control wheel member is selectively caused to rotate relative to the hub, one of said push-pull rods will push said torque tube while the other push-pull rod pulls said torque tube so as to cause said flexible spar to twist and thereby selectively cause said blade to change pitch between its minimum pitch position and its maximum pitch position.

4,340,336
ASPIRATOR

Thomas R. Clary, Yorba Linda, Calif., assignor to Hudson Oxygen Therapy Sales Company, Temecula, Calif.

Filed Mar. 17, 1980, Ser. No. 130,867
Int. Cl.³ F04F 5/52
U.S. Cl. 417—189 8 Claims



1. An aspirator assembly for evacuating gas from a vacuum chamber comprising

(a) a valve cavity having a gas inlet passageway and a gas outlet passageway;

(b) a valve stem, movable between a first and second position having a channel extending through the stem, said channel having an inlet port communicating with said gas inlet passageway, and an outlet port;

(c) a first diaphragm secured to said valve stem and extending across said valve cavity;

(d) a valve chamber communicating with said first diaphragm and said outlet port;

(e) a second diaphragm, having a bottom surface exposed to said vacuum chamber, a top surface exposed to an atmospheric chamber, and movable between a first and second position;

(f) a venturi assembly comprising a venturi tube, a suction chamber connecting said vacuum chamber with said venturi tube, and a conduit connecting said venturi tube with said gas outlet passageway;

(g) first sealing means cooperating with said second diaphragm for forming a gas tight seal between said atmospheric chamber and said valve chamber; and

(h) second sealing means cooperating with said valve stem for forming a gas tight seal between said gas inlet passageway and said gas outlet passageway.

4,340,337

POSITIVE DISPLACEMENT PUMP SYSTEMS

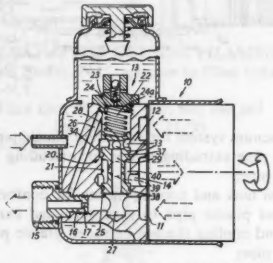
Ian T. Bristow, Higham, and Nigel J. Petts, Rochester, both of England, assignors to Hobourn-Eaton Limited, Kent, England

Filed Dec. 10, 1979, Ser. No. 101,790

Claims priority, application United Kingdom, Dec. 13, 1978, 48268/78

Int. Cl.³ F04B *49/02, 49/08*

U.S. Cl. 417—304 **3 Claims**



1. A positive displacement pump system having first and second delivery passages for pumped fluid, a main discharge passage connected to receive fluid from the first delivery passage and having a discharge orifice disposed therein, overspill porting, and a control valve for apportioning the flow from the second delivery passage between the first delivery passage and the overspill porting and controlling the by-passing of a proportion of the flow from the first delivery passage to the overspill porting, said control valve comprising a valve body having the overspill porting therein and a spring-loaded valve member adapted and arranged for movement against the spring force in dependence on the pressure drop across said discharge orifice, said valve member having a transfer passage for transferring fluid from the second to the first delivery passage and having passage means therein for respectively placing the first and second delivery passages in communication with the overspill porting, the passage means and the porting being positioned relative to each other for being opened to said second delivery passage as said pressure drop increases for causing an increasing proportion of the fluid from the second delivery passage to be passed to the overspill porting and as said pressure drop increases further, for being opened to said first delivery passage for causing an increasing proportion of the fluid from the first delivery passage to be passed to the overspill porting.

4,340,338

HYDRAULIC PRESSURE BIASED LINEAR MOTION THRUST BLOCK FOR HYDRAULIC PUMPS AND MOTORS

Gregory D. Lemke, Racine, Wis., assignor to Rexnord Inc., Milwaukee, Wis.

Division of Ser. No. 884,924, Mar. 9, 1978, Pat. No. 4,222,718. This application Jun. 13, 1980, Ser. No. 159,015

Int. Cl.³ F03C *2/00*; F04C *15/04*

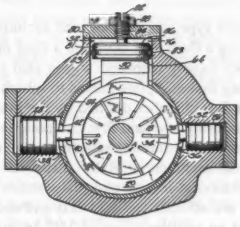
U.S. Cl. 418—26 **8 Claims**

1. A thrust block assembly for a hydraulic pump or motor having a casing defining a chamber for receiving a rotor and a cam ring surrounding said rotor, said cam ring radially movable relative to the axis of said rotor in response to pressures generated within said pump or motor during the operation thereof, said casing further including a bore therethrough into said chamber, said bore being in fluid communication near its outer end with the hydraulic system pressure of said pump or motor, said thrust block assembly comprising:

an outer block having an outer perimeter substantially identical to the perimeter of said bore and a planar, inner surface positioned generally parallel to a plane tangential to said rotor, said outer block freely disposed along the axis thereof in said bore and radially adjustable relative to said rotor axis during the operation of said pump or motor,

adjusting means separate from said outer block for adjusting the radial position of said outer block relative to said rotor axis, said adjusting means attached to said casing to close said bore at its outer end and provide a threadably mounted portion having an outer end external to said pump or motor for rotation thereof during the operation of said pump or motor and an inner end disposed within said bore a distance determined by said external rotation of said threadably mounted portion in juxtaposition to said outer block, said inner end of said threadably mounted portion having an outer perimeter substantially less than the perimeter of said bore,

seal means carried by said outer block to form a sealed pressure chamber in fluid communication with the hydraulic system pressure of said pump or motor within said bore between said outer block and said adjusting means, whereby hydraulic pressure is created between said adjusting means and said outer block during the operation of



said pump or motor tending to separate said adjusting means and said outer block and facilitate said radial adjustment of said outer block during the operation of said pump or motor,

an inner block freely movable within said bore and interposed between said outer block and cam ring, said inner block having a planar, outer surface positioned generally parallel to a plane tangential to said rotor determined by said radial adjustment of said outer block and in sliding contact with said inner surface of said outer block and having an inner surface in contact adjustable during the operation of said pump or motor with the outer periphery of said cam ring to position said cam ring relative to said rotor axis in the directions parallel to the axis of said outer block, so that

substantial movement of said cam ring relative to said rotor axis during the operation of said pump or motor is prevented in the direction of said thrust block by said contact between said inner block and cam ring and facilitated in the directions parallel to said planar surfaces of said inner and outer blocks by said sliding contact therebetween enabling said inner block to slide across said outer block when said cam ring moves in said parallel directions, and

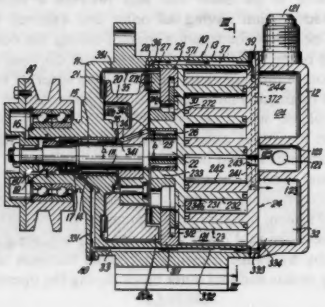
a substantially planar layer of antifriction material bonded to one of said planar surfaces of said inner and outer blocks to reduce the retarding effect on said sliding contact that friction would produce.

4,340,339

SCROLL TYPE COMPRESSOR WITH OIL PASSAGEWAYS THROUGH THE HOUSING

Masaharu Hiraga, Honjo, and Kiyoshi Terauchi, Isesaki, both of Japan, assignors to Sankyo Electric Company Limited, Isesaki, Japan

Filed Feb. 13, 1980, Ser. No. 121,116
Claims priority, application Japan, Feb. 17, 1979, 54/16744
Int. Cl.³ F04C 18/02, 29/02
U.S. Cl. 418—55 7 Claims



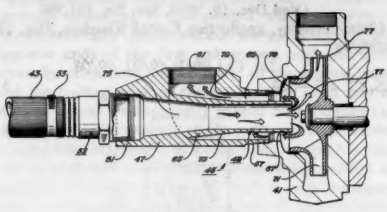
1. In a scroll type compressor unit including a compressor housing having a fluid inlet port and a fluid outlet port, a fixed scroll member fixedly disposed within said compressor housing and having first end plate means to which first wrap means are affixed, a first chamber defined by the inner surface of said compressor housing and said first end plate means of said fixed scroll member and containing said first wrap means therein, an orbiting scroll member orbitally disposed within said first chamber and having second end plate means to which second wrap means are affixed, and said first and second wrap means interfitting at an angular offset of 180° to make a plurality of line contacts to define at least one sealed off fluid pocket which moves with reduction of volume thereof by the orbital motion of said orbiting scroll member, thereby to compress the fluid in the pocket, the improvement which comprises a rear housing on said compressor housing disposed adjacent to said first end plate means and having a suction chamber and a discharge chamber communicating with said inlet port and outlet port, respectively, said first end plate means provided with a fluid intake hole for communicating between said first chamber and said suction chamber and with a fluid discharge port at a position corresponding to the center of said first wrap means for discharging the compressed fluid into said discharge chamber, first means including a drive shaft for imparting the orbital motion to said oribiting scroll member, a front housing on said compressor housing including a first opening for receiving said drive shaft, a shaft seal cavity disposed about a portion of said drive shaft, oil deflector means for directing oil flow along the inner surface of said compressor housing into an axial direction, an oil opening formed in the inner wall of said compressor housing adjacent to an end of said oil deflector means, a first oil passageway communicating between a lower portion of said suction chamber and said shaft seal cavity, and a second oil passageway communicating between said oil opening and said lower portion of said suction chamber, whereby the oil in said lower portion of said suction chamber flows into said first chamber through said first oil passageway, shaft seal cavity and said shaft receiving opening to lubricate moving parts in said first chamber and returns into said lower portion of said suction chamber through said oil deflector means, said oil opening and said second oil passageway.

4,340,340

VACUUM SYSTEM

Glenn R. Brown, Euless, and James S. McMillan, Benbrook, both of Tex., assignors to Plastic Machinery Corporation, Fort Worth, Tex.

Filed Dec. 18, 1980, Ser. No. 217,573
Int. Cl.³ B29F 3/03; B29C 25/00
U.S. Cl. 425—71 4 Claims



1. In a vacuum system for extruding plastic pipe, including:
a. plastic pipe extruding means for extruding hot extruded plastic pipe;
b. vacuum tank and cooling means for conforming the hot extruded plastic pipe to predetermined external dimensions and cooling the hot extruded plastic pipe to a solid plastic pipe;
c. plastic pipe mold for defining said predetermined dimensions of said plastic pipe; said plastic pipe mold being disposed adjacent said plastic pipe extruding means and interiorly of said vacuum tank;
d. cold water inlet means for supplying chilled cooling water for cooling said plastic pipe;
e. effluent water conduit connected with said vacuum tank for circulating the warmer water from said vacuum tank;
f. vacuum forming means for pulling a vacuum on said vacuum tank; said vacuum forming means being connected with said effluent water conduit and comprising a vacuum pump for pumping a gas and a centrifugal liquid pump having an impeller, an inlet suction port, and a peripheral discharge port for pumping the liquid water; the improvement comprising:
g. an outer housing having its first end connected with said effluent water conduit and its second end connected with said inlet suction port of said liquid pump and having intermediate its ends a vacuum port connected with said vacuum pump; and
h. an internal sleeve means for conducting liquid into said impeller directly; said internal sleeve means having its first end sealingly connected to the interior wall of said first end of said outer housing and extending directly toward the entrance to said impeller so as to conduct relatively high velocity liquid by inertia into said impeller; said internal sleeve means having its second end smaller in dimension than said second end of said outer housing so as to define an annular space therebetween for withdrawing gas from the incoming stream and conducting said gas to said vacuum pump via said vacuum port such that said vacuum pump is not flooded by liquid in operation.

3. Apparatus for pulling a vacuum on a system having a conduit for an effluent stream of both liquid and gas and having a gas pump means for pumping gas and a centrifugal liquid pump means having an impeller, an inlet suction port and a peripheral discharge port for pumping liquid therefrom, comprising:
a. an outer housing having its first end connected with said conduit of said effluent stream and having its second end connected with said inlet suction port of said liquid pump means and having intermediate its ends a vacuum port connected with said gas pump means; and
b. an internal sleeve means for conducting liquid into said liquid pump means; said internal sleeve means having its first end sealingly connected to the interior of said first

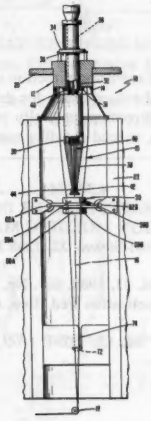
end and extending directly toward the entrance to said impeller of said liquid pump means so as to conduct liquid by inertia into said liquid pump means; said internal sleeve means having its second end smaller in dimension than said second end of outer housing so as to define an annular space therebetween for withdrawing only gas from the incoming stream; said annular space conducting said gas to said vacuum port and thence to said gas pump means such that said gas pump means is not flooded by liquid.

4,340,341

APPARATUS FOR GUIDING FILAMENTS

Max L. Cardell, Shelby, N.C., assignor to Fiber Industries, Inc., New York, N.Y.

Filed Oct. 21, 1980, Ser. No. 199,293
Int. Cl.³ B29C *25/00*
U.S. Cl. 425—72 S **6 Claims**



1. The combination of a spinneret for forming a group of filaments, and a guide disposed below the spinneret for guiding said group of filaments whereby such group forms a main longitudinal axis, said guide comprising:

a carrier movable forwardly toward and rearwardly away from a location where the filament group defines a first cross-sectional area,

a plurality of jaws movably mounted on said carrier for movement between:

an open position, and

a closed position in which said jaws close to form a through-passage which defines a second cross-sectional area smaller than said first cross-sectional area of the filament group and

actuating means operatively connected to said carrier and jaws for:

displacing said carrier forwardly toward the filament group to a filament-capturing position with said jaws open,

closing said jaws around the group of filaments to converge all the filaments within said through-passage, with a longitudinal axis of said through-passage being spaced from said main longitudinal axis,

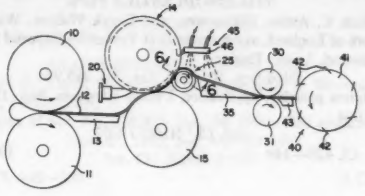
retracting said carrier and closed jaws rearwardly to an operational position to displace said longitudinal axis of said through-passage to a location substantially aligned with said main axis.

4,340,342

APPARATUS FOR PROCESSING ELASTOMERIC MATERIALS

Heung T. Kim, Avon Lake, Ohio, assignor to The B. F. Goodrich Company, Akron, Ohio

Filed Jan. 16, 1981, Ser. No. 225,498
Int. Cl.³ B29C *17/10*
U.S. Cl. 425—72 R **5 Claims**



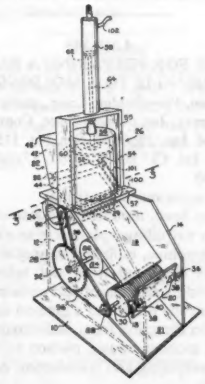
1. An apparatus for the cubing of thermoplastic materials having support means, a pair of rolls mounted on said support means, one of said rolls having a plurality of spaced formers cooperative with said other roll to form an undulating sheet having parallel strands interconnected by laterally extending and longitudinally extending thin web portions from a uniform thickness sheet of hot material passing therebetween, slitting means mounted on said support means and cooperative with said one roll to slit said undulating shapes along said longitudinally extending web portions into longitudinally extending strands, a cube cutter means mounted downstream of said pair of rolls for cutting said laterally extending webs of said plural strands into individual cubes, and cooling means mounted between said cube cutter and said slitting means for cooling said strands.

4,340,343

FOOD PREPARATION MACHINE

Ugo Mancini, 334 Church St., Mountain View, Calif. 94041

Filed Aug. 10, 1981, Ser. No. 291,388
Int. Cl.³ A21C *3/10, 9/08*
U.S. Cl. 425—91 **10 Claims**



1. A food preparation machine comprising:

(a) a flouring ramp having an upper end, a lower end, an upper surface, and a lower surface;

(b) a roller located under said lower surface proximate said lower end of said flouring ramp;

(c) a deflection plate having a lower end spaced from said roller to provide a gap;

(d) means for depositing dough plugs on said upper surface of said ramp proximate said upper end, whereby said plugs may

roll and slide down and then off the end of said ramp, and come into abutment with said deflection plate and roller; and

(e) means rotating said roller so that said plugs abutting said deflection plate and said roller are forced through said gap.

4,340,344
APPARATUS FOR MANUFACTURE OF THERMOPLASTICS PIPE

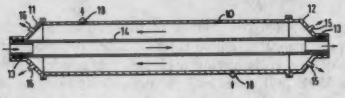
William C. Aston, Halesowen, and Derek Walker, Wakefield, both of England, assignors to IMI Yorkshire Imperial Plastics Limited, Leeds, England

Filed Sep. 10, 1980, Ser. No. 185,926

Claims priority, application United Kingdom, Sep. 15, 1979, 7932064

Int. Cl.³ B29C *17/07*

U.S. Cl. 425—149 **10 Claims**



1. Apparatus for use in the manufacture of thermoplastic pipe by radial expansion of a pipe blank, comprising a mould having a cylindrical central mould portion and two mould end portions closing the ends of the cylindrical central mould portion at least one of the end portions being removable from the central portion; means for centrally locating a pipe blank at its ends in each of the mould end portions, said locating means in use extending internally of the blank; means for supplying heated fluid through one mould end portion into the space which in use occurs between the blank and the cylindrical walls of the central mould portion and means for removing said fluid through the other mould end portion; means for supplying heated fluid at a first pressure through the locating means into the interior of the blank, and means for removing said fluid through the other locating means; and means for suppiying fluid into the interior of the blank under such a higher pressure as to cause the blank to expand radially into engagement with the interior of the mould.

4,340,345
APPARATUS FOR PREPARING A PARISON AND TRANSFERRING IT TO A MOLDING MACHINE

Peter T. Schurman, Woodbridge, Conn., assignor to The Plastic Forming Company, Inc., Woodbridge, Conn.

Filed Jan. 28, 1980, Ser. No. 115,944

Int. Cl.³ B29C *17/07, 17/16*

U.S. Cl. 425—150 **20 Claims**

1. A molding apparatus comprising:

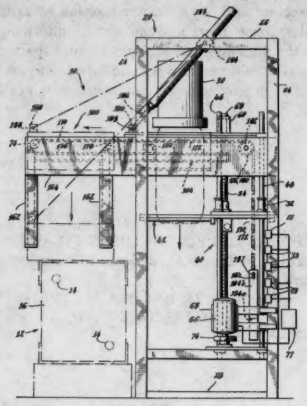
A. an extrusion head, mounted in a stationary location, for continuously extruding a parison in an extrusion direction;

B. a molding machine, mounted in another stationary location laterally displaced from and below said extrusion head, for molding sections of said parison into articles; and

C. a mechanism for preparing a parison as it is extruded in said extrusion direction from said extrusion head and for transferring sections of said parison to said molding machine, said preparing and transferring mechanism including:

(1) parison stretcher means mounted below said extrusion head for grasping and sealing said parison at one location on its length and for stretching said parison, while being extruded, in said extrusion direction at a controlled rate; and

(2) parison transfer means mounted for movement between the region of said extrusion head and the region of said molding machine, and being operable for grasping and sealing said parison at a second location on its length intermediate said one location and said extrusion head to thereby define a parison section; for severing said parison section from said parison after being stretched; for transferring said parison section transversely to said extrusion direction away from said extrusion head; and subsequently for delivering said parison section, in a direction generally parallel to said extrusion direction, to said molding machine.



4,340,346
MECHANICAL SAFETY COVER INTERLOCK FOR INJECTION MOLDING MACHINE

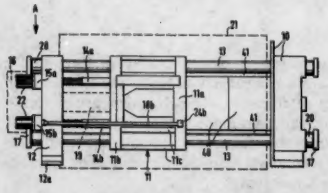
Karl Hehl, Arthur-Hehl-Strasse 32, 7298 Lossburg 1, Fed. Rep. of Germany

Filed Jul. 21, 1980, Ser. No. 170,920

Claims priority, application Fed. Rep. of Germany, Jul. 21, 1979, 2929676

Int. Cl.³ B29F *1/00*

U.S. Cl. 425—152 **12 Claims**



1. In the die closing unit of an injection molding machine which has a stationary die half mounted on a stationary die carrier member and a movable die half mounted on a movable die carrier member and a plurality of tie rods guiding the movable die carrier member for axial die opening and closing movements while forming a rigid connection between the stationary die carrier member and a stationary support member located axially behind the movable die carrier member and an axially rearwardly retractable safety cover enclosing at least a portion of the die closing unit, in said die closing unit, a mechanical safety cover interlock mechanism comprising in combination:

at least one arresting rod attached to the movable die carrier member and extending axially rearwardly therefrom through the stationary support member;

an arresting unit for each arresting rod mounted on the rear side of the stationary support member; and

a control rod for each arresting unit attached on one extremity to the safety cover and extending axially rearwardly there-

from into cooperative engagement with the control unit; and wherein

the arresting rod has a succession of transverse grooves on that portion of its length which extends rearwardly beyond the stationary support member in the open position of the movable die carrier member;

the arresting unit includes two arresting jaws on diametrally opposite sides of the arresting rod with matching teeth engageable into the grooves of the arresting rod, the arresting jaws being guided for opposite transverse movements into and out of engagement with the arresting rod;

the arresting unit further includes means for resiliently biasing the arresting jaws into engagement with the arresting rod; and

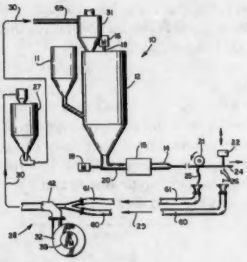
the interlock mechanism further comprises control means defined by the control rod and the arresting unit for forcibly disengaging the arresting jaws from the arresting rod, in opposition to the jaw biasing means, when the safety cover is in the closed position, and for freeing the jaw biasing means to move the arresting jaws into engagement with the arresting rod, when the safety cover is retracted from the closed position.

4,340,347

SCRAP RECOVERY SYSTEM

Joseph D. Robertson, 990 Swathmore Dr., NW., Atlanta, Ga. 30327

Filed Dec. 1, 1980, Ser. No. 211,751
Int. Cl.³ B29F *3/02*
U.S. Cl. 425—217 **5 Claims**



1. A scrap recovery apparatus for a processing system in which particulate plastic materials are moved from a supply hopper through a former and formed into a product, cutting means cuts the formed product, and the scrap from the cut product is moved progressively from the cutting means back to the supply hopper, the improvement therein of pneumatic conveying means including a blower having an exhaust opening, an approximately L-shaped induction conduit with a first leg including an induction air inlet in communication with said blower exhaust opening, a second leg angled with respect to said first leg and defining an outlet opening and formed with a section of progressively reduced cross-sectional area at its outlet opening, a third opening positioned generally between the inlet opening of said first leg and the outlet opening of said second leg, an adjustable feed nozzle extending through said third opening and defining an inlet opening outside said induction conduit and a discharge nozzle opening in said induction conduit aligned with the outlet opening of said induction conduit, said feed nozzle defining a rectilinear cylindrical passageway extending therethrough for the movement of scrap in a straight path from outside said induction conduit, through said feed nozzle and into the second leg of said induction conduit, means for adjustably positioning the discharge opening of said feed nozzle to locate the discharge opening further into or out of the section of progressively reduced cross-sectional area of said induction conduit, whereby air from the blower is moved through the first leg of the induction conduit, then about the feed nozzle and through the second leg of the induction conduit and through the progressively reduced cross-sectional area of the outlet opening of the induction conduit to induce a flow of air and scrap in a straight path from outside the induction conduit and on through the feed nozzle and the second leg of the induction conduit, for directing scrap from said cutting means to said induction conduit and directing scrap from the induction conduit to the supply hopper of the processing system.

4,340,348

GLOVE MOLDING APPARATUS

Leonard D. Kurtz, Woodmere, N.Y., assignor to BioResearch Inc., Farmingdale, N.Y.

Division of Ser. No. 125,925, Feb. 29, 1980. This application Mar. 27, 1981, Ser. No. 248,540
Int. Cl.³ B29H *3/042*
U.S. Cl. 425—270 **3 Claims**

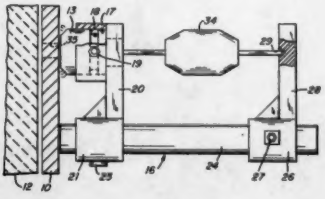
1. A molding device for molding gloves having a percentage elongation of at least 300%, said device including a tank containing a polymer, a pair of glove molds supported on a suppot arrangement adapted to be submerged in said tank so as to provide a coating of said polymer on said molds, each of said glove molds comprising a handshaped mold member including separate, spaced fingers and the tips of the fingers and the spaces between the fingers comprising non-rounded, non-horizontal inclined surfaces which are joined at an apex and define an included angle therebetween.

4,340,349

APPARATUS FOR REPAIRING HOT SPOTS IN A REFRACTORY LINED WALL

Larry R. Cary, 214 Brandt Pl., Hobart, Ind. 46342

Filed Jan. 11, 1980, Ser. No. 111,451
Int. Cl.³ B28B *1/48*
U.S. Cl. 425—290 **4 Claims**



1. Apparatus for repairing hot spots in a wall which has a metal shell and a refractory lining, said apparatus comprising a plurality of relatively closely spaced couplings affixed in advance to said shell over a relatively large area, a jig adapted to be removably mounted on any of said couplings which overlies a hot spot, a drill adapted to be supported on said jig for drilling a hole through said shell at the coupling on which said jig is mounted whereby grouting material may be injected

through said hole, and with said coupling being adapted for plugging after injection of grouting materials.

4,340,350

PROCESS AND APPARATUS FOR THE MANUFACTURE OF SINTERED TUNGSTEN CARBIDE TOOL TIPS

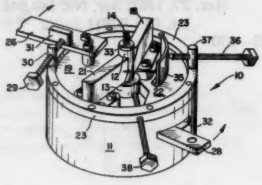
Karl S. Springborn, Waverley, Australia, assignor to Austung Proprietary Limited, South Yarra, Australia

Division of Ser. No. 84,296, Oct. 12, 1979, Pat. No. 4,303,416. This application Aug. 25, 1980, Ser. No. 180,942

Claims priority, application Australia, Oct. 20, 1978, PD6483

Int. Cl.³ B29C *1/00, 3/00*

U.S. Cl. 425—409 **13 Claims**



1. Apparatus for the manufacture of pressed blanks from particulate tungsten carbide for sintering and then fitment to cutting tool edges as inserts, said apparatus comprising a press assembly having a body, a forming pin which is centrally and vertically disposed within said body, a compression jaw and an ejection jaw forming a split-die which defines the sides of a cavity between said jaws and is adapted for limited, horizontal, angular reciprocation about said forming pin in sequential jaw-opening, carbide-filling, jaw-closing, blank pressing and blank ejection movements, and vertical and horizontal forming members for sealing said cavity formed by said jaws and said members against loss of said particulate tungsten carbide during said carbide-filling, jaw closing, and blank pressing movements.

4,340,351

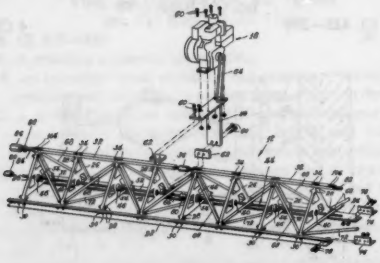
VIBRATORY CONCRETE SCREED WITH ECCENTRIC DRIVE SHAFT

Joe M. Owens, 16 Pebblewood Trail, Naperville, Ill. 60540

Filed Feb. 13, 1981, Ser. No. 234,348

Int. Cl.³ B28B *1/08;* **E01C** *19/22, 19/30;* **B06B** *1/16*

U.S. Cl. 425—456 **14 Claims**



1. In a vibratory concrete screed having a pair of spaced apart elongate screed plates for working concrete as the screed is moved across the concrete and having vibratory means to impart uniform vibrations to the screed plates for tamping and leveling the concrete, the improvement comprising

a. a framework interconnecting said screed plates, said framework having a series of spaced, parallel, unitary frame members of triangular configuration having an integral, rigid cross support, the corners of the base of each said frame member including means attaching said frame member to said screed plates and maintaining said screed plates in spaced apart relationship, and

b. a plurality of side braces extending between said frame members, each side brace extending between the base of one said frame member and the apex of the next adjacent frame member.

4,340,352

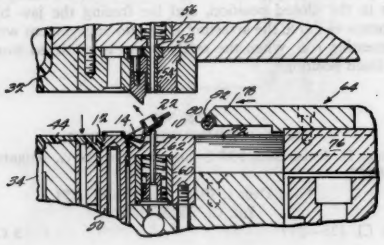
HINGE EXERCISING MECHANISM

Robert S. Hayberg, Pembroke Lakes, Fla., assignor to Global Precision Inc., Hollywood, Fla.

Filed Dec. 31, 1980, Ser. No. 221,918

Int. Cl.³ B29C *27/12*

U.S. Cl. 425—517 **16 Claims**



1. A device for closing a lid of a cap while in a mold for forming said cap, said lid being pivotably connected to said cap by a hinge, said device comprising:

a finger including a portion adapted for engagement with said cap;

means for slidably connecting said finger to said mold, said finger being able to slide transverse to the axis of said hinge, said connecting means being oriented to enable said finger portion to engage said lid and rotate said lid about said hinge as said finger slides; and

means for driving said finger.

4,340,353

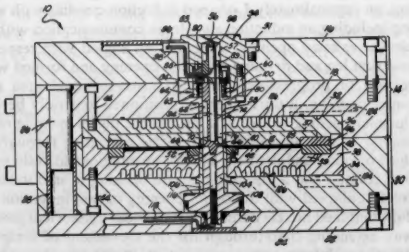
HOT SPRUE VALVE ASSEMBLY FOR AN INJECTION MOLDING MACHINE

Bruno F. P. Mayer, Orange, Calif., assignor to Discovision Associates, Costa Mesa, Calif.

Filed Oct. 31, 1980, Ser. No. 202,838

Int. Cl.³ B29D *17/00*

U.S. Cl. 425—548 **22 Claims**



1. In an injection molding machine for producing centrally apertured record discs, a valve assembly for controlling flow of molten disc-forming material through a sprue bushing into a disc-shaped mold cavity, comprising:

a poppet valve positioned at the end of the sprue bushing adjacent the mold cavity and movable between an open

position spaced from said end of the the sprue bushing to allow flow of the molten disc-forming material through the sprue bushing into the mold cavity, and a closed position seated upon said end of the sprue bushing to prevent flow of the molten disc-forming material through the sprue bushing into the mold cavity; and

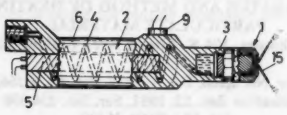
ram means positioned on the side of the mold cavity generally opposite the sprue bushing for engaging said poppet valve and for positively moving said poppet valve from said open position to said closed position.

4,340,354

OIL BURNER

Anton Schwarz, Hohenstrasse 24a, Innsbruck, Austria (A-6020)

Continuation of Ser. No. 851,478, Nov. 14, 1977, abandoned.
This application Nov. 1, 1979, Ser. No. 90,278
Claims priority, application Austria, Nov. 12, 1976, 8460/76; Fed. Rep. of Germany, May 2, 1977, 2719573
Int. Cl.³ F23N *1/00*
U.S. Cl. 431—12 **1 Claim**



1. A method of controlling the heat output of an oil burner by having a first nominal heat output for a first flow rate and changing to a reduced second output for a second flow rate, the oil burner burning light fuel oil of up to 12 centistoke at 20° C. viscosity in the oil burner, the oil burner having an atomizing nozzle for atomizing the light fuel oil when it is supplied to the nozzle under pressure and for a heat capacity of less than 20,000 kcal/h, the nozzle being of the type which has a swirl chamber with an outlet bore for atomizing the light fuel oil into a conical spray with central air core and designed for flow rates of between 0.4 and 1.0 gal/h, the method comprising:

heating the light fuel oil at a location immediately upstream of the swirl chamber of the atomizing nozzle to a temperature between 100° C. and 150° C. and below the cracking and coking temperature of the oil to continuously reduce the viscosity and density thereof to less than 2 centistoke;

feeding the heated light fuel oil through the atomizing nozzle under a pressure of between 2.5 and 12 atm;

controlling the flow rate by weight of the light fuel oil by heating so that the flow rate by weight thereof is decreased by up to 60% to the second flow rate as compared with the first flow rate through the atomizing nozzle supplied with the unheated light fuel oil; and

igniting the light fuel oil after it has passed through the atomizing nozzle.

4,340,355

FURNACE CONTROL USING INDUCED DRAFT BLOWER, EXHAUST GAS FLOW RATE SENSING AND DENSITY COMPENSATION

Lorne W. Nelson, Bloomington, and Ralph H. Torborg, Minnetonka, both of Minn., assignors to Honeywell Inc., Minneapolis, Minn.

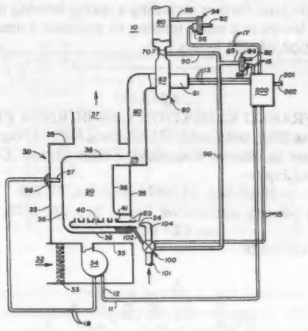
Filed May 5, 1980, Ser. No. 146,885
Int. Cl.³ F23N *3/00*
U.S. Cl. 431—20 **18 Claims**

1. In a heating system of the type having a combustion chamber with a fuel burner, an inlet for combustion air, and an exhaust stack for exhaust gas, the improvement comprising:

a blower connected to the exhaust stack for inducing exhaust gas flow through the exhaust stack and for drawing combustion air into the combustion chamber;

means for variably controlling the volume delivery rate of the blower such that volume flow of exhaust gas through the exhaust stack and of combustion air into the combustion chamber are simultaneously regulated;

variable fuel supply control means responsive to the volume flow of exhaust gas through the exhaust stack for supplying fuel to the burner at a rate linearly proportional to the volume flow of exhaust gas and combustion air such that the furnace can operate at higher and lower firing rates; and



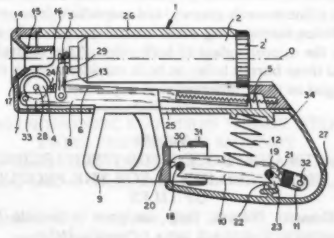
compensation means cooperating with the fuel supply control means and responsive to the density of the exhaust gas for modifying the rate of supplying fuel for a given volume flow of exhaust gas and combustion air when the exhaust gas density changes, whereby excess combustion air relative to fuel supplied at lower firing rates can be reduced.

4,340,356

GAS LIGHTER

Alfred Racek, Seitenbergstr. 54, 1160, Wien, Austria

Filed Mar. 3, 1980, Ser. No. 126,360
Int. Cl.³ F23G *1/04, 7/12*
U.S. Cl. 431—254 **4 Claims**



1. A gas lighter comprising:

a casing provided with a mouthpiece having an aperture;

a source of flammable gas in said casing aligned with said aperture and provided with a normally closed shut-off valve;

pyrophoric means in said casing for igniting gas issuing from said source upon the opening of said shut-off valve, said pyrophoric means including a flint holder and a striker wheel coacting with a flint carried by said holder;

manual actuating means coupled with said shut-off valve for setting said striker wheel in rotation and concurrently opening said shut-off valve and for generating a gas flow ignited by sparks from said flint, said actuating means including a rotatable holder for said striker wheel centered on an axis of rotation and a slider linked with said rotatable holder at a location offset from said axis; and

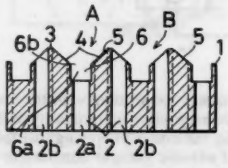
a spring-loaded toggle joint in said casing linked with said actuating means for urging same into an unoperated position and opposing manual displacement thereof with a progressively decreasing force enabling rapid acceleration of said striker wheel, said toggle joint including a longer lever articulated to said slider at a first fulcrum and a shorter lever articulated to said casing at a second fulcrum substantially in the line of motion of said first fulcrum, said levers being hingedly interconnected at a pivot point, said toggle joint further including a spring bearing upon one of said levers in a sense tending to maintain a nearly aligned position of said levers.

4,340,357

INFRARED RADIATION GAS BURNER PLATE

Michimasa Kito, and Toshiyuki Nomura, both of Nagoya, Japan, assignors to Rinnai Kabushiki Kaisha Rinnai Corporation, Nagoya, Japan

Filed Sep. 25, 1979, Ser. No. 78,703
Claims priority, application Japan, Sep. 29, 1978, 53-119285
Int. Cl.³ F23D *13/12*
U.S. Cl. 431—328 **4 Claims**

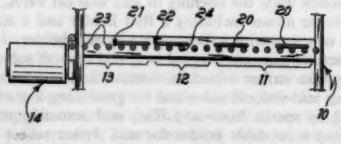


1. An infrared radiation gas burner plate of the type that a plate member composed chiefly of ceramic is provided with a large number of distributed burner holes made therethrough, characterized in that plural ribs, each of which is nearly V-shaped in section and comprises a linear ridge and a pair of slants on both sides of the ridge, are provided in parallel one with another on the obverse surface of the plate member, and each valley formed between mutually opposite slants of each adjacent pair of the ribs is formed into a groove of nearly channel-shaped in section, and the foregoing burner holes are arranged to be composed of plural central burner holes disposed in a line in each groove, and respective four peripheral burner holes surrounding each central burner hole and disposed in the opposite slant of both sides of the central burner hole, and these burner holes on both outsides of each ridge are so arranged as to be differentiated in phase.

4,340,358

APPARATUS AND PROCESS FOR DISCHARGING TILES FROM HIGH SPEED OVENS FOR THE PRODUCTION OF TILES

Renato Bossetti, Novara, Italy, assignor to Societa Impianti Termoelettrici Industriali (s.a.s.), Novara, Italy

Continuation-in-part of Ser. No. 155,114, May 30, 1980, abandoned, which is a continuation of Ser. No. 929,292, Jul. 28, 1978, abandoned. This application Jul. 8, 1980, Ser. No. 166,812
Claims priority, application Italy, Jul. 28, 1977, 26234 A/77
Int. Cl.³ F27D *3/00*; **F27B** *9/00*
U.S. Cl. 432—11 **11 Claims**

1. A process for discharging fired tiles from firing ovens or devices and/or conveyors located downstream thereof, said process comprising:

receiving plural generally transverse rows of said fired tiles at a first speed substantially equal to the travel speed of said tiles in an oven chamber, and conveying each said row of tiles at said first speed and in a direction of travel;

increasing the speed of each said row of tiles to a second speed greater than said first speed, and thereby increasing the spacing between successive said rows of tiles, and conveying each said row of tiles at said second speed and in said direction of travel;

subsequently further increasing the speed of each said row of tiles to a third speed greater than said second speed, and bringing each said row of tiles into engagement with an aligning device and thereby precisely aligning said row in a direction transverse to said direction of travel;

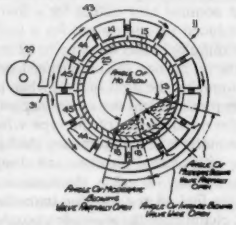
subsequently discharging the thus aligned row of tiles at said third speed onto a discharge conveyor and conveying them to transport and/or storage devices.

4,340,359

APPARATUS AND METHOD OF HEATING PARTICULATE MATERIAL

Holger Struckmann, 104 S. Alward Ave., Basking Ridge, N.J. 07920

Division of Ser. No. 8,268, Feb. 1, 1979, Pat. No. 4,266,931. This application Jan. 12, 1981, Ser. No. 224,030
Int. Cl.³ F21B *15/00*
U.S. Cl. 432—14 **8 Claims**



1. A method of heat treating particulate material in a rotary drum, said method comprising the steps of

placing a charge of particulate material in a rotary drum having a horizontally disposed longitudinal axis;

rotating the drum about said axis to displace the charge of material towards one side of said drum to dispose the charge in a bed with a surface defining an angle to a horizontal plane, while cascading the material within said bed; and

passing a flow of air upwardly at a predetermined fixed angle to the vertical and over a selectively variable angle of blow into the charge of material during rotation of the drum.

4,340,360

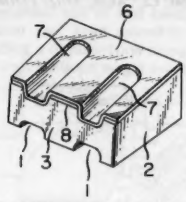
FIRE BRICK FOR A ROTARY KILN

Fritz Hoedl, Vienna, Austria; Morihiro Kimura, Tokyo, and Yoshio Yasuda, Bizen, both of Japan, assignors to Veitscher Magnesitwerke-Aktiengesellschaft, Vienna, Austria and Shinagawa Refractories Co., Ltd., Tokyo, Japan

Filed Dec. 17, 1980, Ser. No. 217,536
Claims priority, application Japan, Jun. 19, 1980, 55-84968[U]
Int. Cl.³ F27B *7/28*
U.S. Cl. 432—119 **2 Claims**

1. A fire brick for a rotary kiln, said brick having a face which, when the brick is installed in a rotary kiln, faces the interior of the kiln, a pair of opposite large side surfaces extending away from said face, and an iron cladding end to which said large side surfaces extend and, when the brick is installed

in a rotary kiln, engages the iron cladding of the kiln, at least one of said side surfaces having at least one concavity extending in the radial direction of the kiln from said face, and a steel plate covering said side surface and having a portion complementary in shape to said concavity and extending to the bottom of said concavity, said steel plate being bent to form a concavity complementary in shape to the concavity in said brick, the concavity in said plate being the sum of the depth of the concavity in said brick plus an expansion absorbing tolerance.

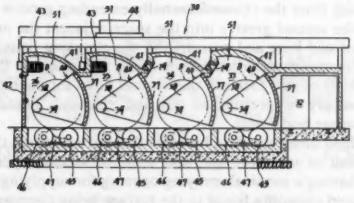


4,340,361

APPARATUS FOR HEAT-TREATING CAST IRON PIPES

Yoshio Tanaka; Susumu Togawa, both of Takarazuka, and Akinori Sakoda, Amagasaki, all of Japan, assignors to Kubota, Ltd., Osaka, Japan

Filed Jun. 10, 1980, Ser. No. 158,148
Claims priority, application Japan, Jun. 14, 1979, 54-75978
Int. Cl.³ F27B *9/02*; F27D *19/00*
U.S. Cl. 432—128 **9 Claims**



1. In a system for manufacturing cast iron pipes comprising a rotary mold of the stationary type included in a centrifugal casting machine and a heat-treating furnace, the improvement wherein:

the heat-treating furnace is disposed close to the rotary mold for receiving red-hot cast iron pipes directly therefrom;

the furnace has a plurality of furnace chambers arranged side by side in parallel to the axis of the mold and partitioned by partition members provided between the chambers, each furnace chamber being adapted to accomodate and separately treat one cast iron pipe;

rotating means is provided in each of the furnace chambers for supporting and positively rotating the pipe in a fixed position; and

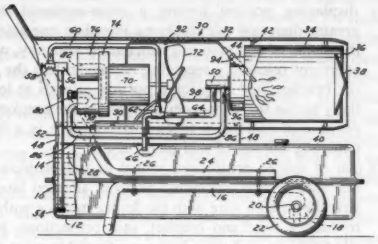
means is provided for adjusting the temperature of the pipe accomodated in each of the furnace chambers, the temperature adjusting means comprising burners, disposed at least in the chamber for receiving a cast iron pipe from the mold, for emitting heat directly toward the top of the pipe.

4,340,362

FUEL FLOW MEANS FOR PORTABLE SPACE HEATERS

Clayton W. Chalupsky, and David A. Clemen, both of Cedar Rapids, Iowa, assignors to Ex-Cell-O Corporation, Troy, Mich.

Filed Feb. 23, 1981, Ser. No. 237,329
Int. Cl.³ F24H *1/00*; F23D *15/02*
U.S. Cl. 432—222 **6 Claims**



1. A space heater apparatus having a fuel tank and support means, a combustion chamber means supported above said tank means including a combustion chamber, burner means, an aspirating nozzle means having a syphon line, motor driven fan, an air compressor and air line means connected to said nozzle means, an electrical control means and a fuel supply means wherein the improvement comprises

(a) a lift pipe means connecting fuel in said fuel tank, first stage pump means operative to supply a low pressure head of fuel to said aspirating nozzle means;

(b) valve means for adjusting the flow of fuel in said fuel system;

(c) fuel system means including said first stage pump means and a continuously open tank return fuel line in communication with said fuel tank and said aspirating nozzle to establish a pressure head source in communication with said syphon line for directing fuel to said aspirating nozzle means and wherein excess fuel is returned to said tank means;

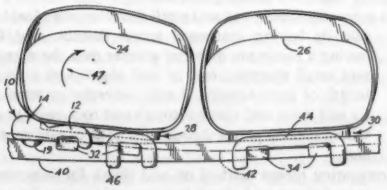
(d) said aspirating nozzle defining second stage pump means for drawing fuel from said low pressure source to produce a second stage pressure boost for supplying fuel under pressure to said combustion chamber.

4,340,363

ORTHODONTIC ROTATION WEDGE WITH TWIST-PREVENTING MOUNDS

Paul E. Klein, Lake Oswego, and Roland M. Anderson, Portland, both of Oreg., assignors to Modcom, Inc., Canby, Oreg.

Continuation of Ser. No. 6,583, Jan. 26, 1979, abandoned. This application Jan. 29, 1981, Ser. No. 229,769
Int. Cl.³ A61C *3/00*
U.S. Cl. 433—18 **2 Claims**



1. A mouth-fluid resistant elastomeric tooth rotation-effecting device in combination with a standard-twin-type orthodontic bracket or the like having at least one pair of ligation posts

disposed on opposite sides of and at least partially defining a path for receiving an orthodontic arch wire, said device comprising

an attaching portion in the form of a substantially planar web of one cross-sectional thickness including, in the plane of the web, a pair of apertures releasably receiving and encircling such posts, said apertures, as so encircling such posts, inhibiting rotation of the device relative to such a bracket about an axis normal to the plane of said web,

a displacing portion having a cross-sectional thickness greater than said one thickness joined to one side, and in the plane, of said web and being sized whereby, with said apertures releasably receiving and encircling the posts in the bracket, said displacing portion extends at least partially across the wire-receiving path in the bracket for the purpose of exerting a tooth-rotating force in a direction generally normal to said plane, and

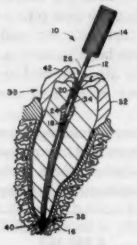
a pair of spaced projections joined to and projecting from one side of said displacing portion, adapted laterally to straddle an arch wire with the device in place with respect to such a wire and bracket, said projections, when so straddling an arch wire, being positioned to react, through direct lateral contact, with the arch wire thus to inhibit lateral shifting of said displacing portion relative to the arch wire, and to insure retention of the arch wire in the space between said projections.

4,340,364

ENDODONTIC TEST FILE

Milton G. Deemer, 3982 Hackberry Pl., Castro Valley, Calif. 94546

Filed Aug. 18, 1980, Ser. No. 179,052
Int. Cl.³ A61C *3/00, 5/02*
U.S. Cl. 433—75 **3 Claims**



1. An endodontic test file for measuring the length of tooth between the apex of its root and the crown, said test file comprising:

a smooth, strong, tapered, resilient, shank having a total length substantially greater than the estimated length of the tooth and a small diameter end smaller than that of the root canal of said tooth;

a handle connected to the large diameter end of said shank for manually rotating said shank;

a screw tip attached to said small diameter end of said shank, said tip having sharpened screw threads, said threads having a maximum diameter greater than the diameter of said small diameter end of said shank and a maximum length of approximately 1 mm, whereby rotation of said tip will draw said shank through said root canal to a point where said tip passes through the apex of said root canal; and

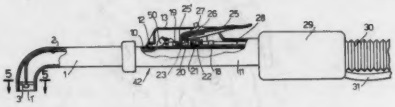
measuring means marked on said shank for indicating distances along said shank between said screw tip and said handle, the indicated marking at the level of the tooth crown representing the length of the tooth between said apex and said crown.

4,340,365

SPRAYING AND SUCTION CLEANSING DEVICE

Antonio Pisanu, Corso Vittorio Emanuele, 108, 07010 Ittiri (Sassari), Italy

Filed May 6, 1980, Ser. No. 147,273
Claims priority, application Italy, May 8, 1979, 65011 A/79
Int. Cl.³ A61C *5/02, 17/04*
U.S. Cl. 433—80 **10 Claims**



1. A spray and suction cleansing device comprising:

means for defining an elongate housing having a suction pipe with a terminal suction opening at an end thereof;

means for supplying negative pressure through said suction pipe to said terminal suction opening for removing materials from a surface being cleansed;

a mixer supported by said housing having a mixer body and a liner in sealing contact with an outer circumferential surface of the mixer body, the mixer body having an axially extending bore with an inlet end and an outlet end, a circumferentially extending groove radially spaced from the bore, and a second groove formed in the circumferential surface interconnecting the circumferentially extending groove with a space adjacent the outlet end of said bore and having a decreasing cross sectional area in a direction extending towards the space;

a first tube having an inlet connectable to a source of cleansing liquid and an outlet in fluid communication with said inlet end of said bore for supplying cleansing liquid to said mixer body;

a second tube having an inlet connectable to a source of pressurized gas and an outlet in fluid communication with said circumferentially extending groove for supplying pressurized gas to said mixer body, the supplied gas flowing from the circumferentially extending groove through the second groove into the space adjacent the outlet end of said bore and pressurizing the cleansing liquid;

lever means disposed intermediate the inlet and the outlet ends of said first and said second tubes for controlling the supply of pressurized gas and cleansing liquid to said mixer body; and

a third tube extending between the space adjacent the outlet end of said bore and said terminal suction opening and having a terminal spraying opening for supplying pressurized cleansing liquid to the surface being cleansed so that the liquid loosens substances from the surface for removal by said means for supplying negative pressure, said third tube being encompassed by said suction pipe so that the portion of said suction pipe adjacent said terminal suction opening tends to prevent dispersion of said cleansing liquid thereby facilitating its removal from the surface being cleansed by said means for supplying negative pressure.

4,340,366

WATER/AIR SPRAY SYSTEM FOR DENTAL HANDPIECE

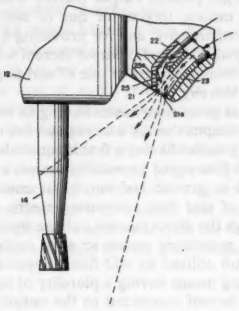
Donald J. Heil, Lake Villa, Ill., assignor to American Hospital Supply Corporation, Evanston, Ill.

Filed Feb. 23, 1981, Ser. No. 236,642
Int. Cl.³ A61C *1/12*
U.S. Cl. 433—82 **4 Claims**

1. A dental handpiece comprising a hollow handle having a proximal end portion adapted for connection to a supply hose containing conduits for the supply of air and water to said handle, an elongated body portion, and a neck portion termi-

nating at its distal end in a head assembly; said head assembly including a housing, an air turbine within said housing adapted to be driven by air supplied to said handle, and a chuck for operatively connecting a dental bur to said turbine; wherein the improvement comprises

said handle containing a spray tube assembly comprising a pair of tubes defining passages for conducting water and air from the proximal end of said handpiece to a nozzle disposed adjacent said head assembly; said spray tube assembly including a distal section along which said tubes have adjacent wall portions joined together; said adjacent



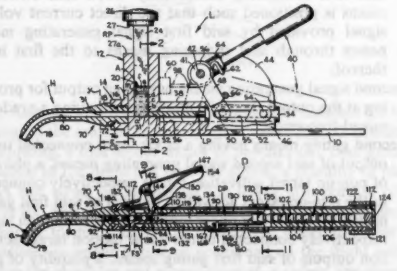
wall portions of said tubes being removed at said distal section to provide a cutout and to define a unitary nozzle chamber having a discharge orifice for directing a spray of water and chip air towards the cutting end of a dental bur; a portion of said waterconducting tube defining a wall portion of said nozzle chamber diametrically opposite from said cutout providing a deflecting surface aligned with the water passage and sloping inwardly and distally towards said orifice to deflect water from said water passage into the path of air discharged from said air passage and immediately prior to discharge of said spray from said orifice.

4,340,367

LOADER AND DISPENSER FOR DENTAL AMALGAM

Leslie Vadas, 135 Riviera Dr., Los Gatos, Calif. 95030, and Bert M. Sabo, 19200 Bountiful Acres, Saratoga, Calif. 95070

Filed Dec. 15, 1980, Ser. No. 216,147
Int. Cl.³ A61C *5/04*
U.S. Cl. 433—89 **9 Claims**



1. A dental amalgam dispensing instrument of the type having a discharge head formed with an amalgam passage, a hollow handle for said head, a plunger having a front amalgam dispensing tip slidable in the amalgam passage of the head and a rearward extension with ratchet teeth, plunger-advancing pawl means for said ratchet teeth and actuator means for said pawl means; the improvement wherein said plunger-advancing pawl means comprises a sleeve slidably mounted in a forward portion of said handle, said sleeve surrounding said plunger, a cantilever spring projecting rearwardly from said sleeve and a pawl tooth at a rear portion of said spring.

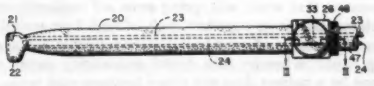
3. A dental amalgam loading assembly of the type comprising an amalgam loader unit having a body formed with a loading passage, a loading plunger slidable in said loading passage, an amalgam reservoir passage formed in said loader body and intersecting said loading passage, a replenishing plunger slidable in said reservoir passage, means for advancing said loading plunger across said passage intersection for shearing off slugs of amalgam and means for detachably mounting an amalgam receiving member on said loader unit which member has a bore for receiving the slugs of amalgam; the improvement wherein said body has a bayonet joint breech projecting forwardly from a zone adjacent said passage intersection; said amalgam receiving member comprising an amalgam dispensing head having a through bore, a discharge tip at its front end and a bayonet joint breech portion at its rear end; said loader body breech detachably receiving said breech portion of the dispensing head, said loading plunger advancing means comprising means for advancing a forward portion of the loading plunger a predetermined distance past said passage intersection, into said loader body breech and into the bore of said dispensing head at the breech portion of said head.

4,340,368

DENTAL HANDPIECE OR THE LIKE

Michael P. Lococo, 4927 Victoria Ave., Niagara Falls, Ontario, Canada (L2E 1X1)

Filed Sep. 17, 1980, Ser. No. 188,025
Int. Cl.³ A61C *1/02*
U.S. Cl. 433—99 **23 Claims**



1. A dental handpiece assembly of the type including:

(a) an elongate handle provided at one end thereof with dental burr mounting means for releasably securing a dental burr to said handle;

(b) burr drive means for rotating a burr secured in said mounting means;

(c) drive shut-off means for selectively shutting off rotary motion of a burr mounted in said mounting means;

(d) suspension engagement means for suspending said handle on a support and secured to said handle to form a generally integral unit therewith but being movable relative to the handle within predetermined limits of movement, said engagement means being adapted to move to one of said predetermined limits due to the weight of the suspended handle when the handpiece assembly is not in use;

(e) mode control means for selectively maintaining said shut-off means in one of its "on" or "off" modes;

(f) said mode control means being operatively associated with said engagement means such that the limits of movement of said engagement means corresponds to the respective modes of the mode control means, said "off" mode corresponding to the limits obtained on suspension of said handle.

4,340,369
DENTAL ARTICULATING PAPER FORCEPS

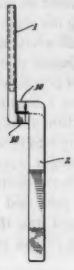
Artur Steiner, Postfach 65, 7707 Engen, Hegau, Fed. Rep. of Germany, and Howard G. Frank, 70 E. 10th St., New York, N.Y. 10003

Continuation of Ser. No. 938,758, Sep. 1, 1978, abandoned. This application Oct. 14, 1980, Ser. No. 196,741

Claims priority, application Fed. Rep. of Germany, Sep. 1, 1977, 7727100[U]

Int. Cl.³ A61C *3/00*

U.S. Cl. 433—162 **6 Claims**



1. In dental articulating paper forceps having a pair of aligned elongated jaws extending from interconnected spring arms and movable toward and away from one another with said spring arms resiliently holding said jaws together, said spring arms being the sole means holding said jaws together, the improvement where one of said jaws has a central ridge laterally recessed from the sides of the jaw and extending longitudinally substantially throughout its length and facing the other jaw, and the other of said jaws has a central longitudinally extending recess of a cross section matching said ridge and positioned to receive said ridge upon closure of said jaws, said central ridge having a cross secton with four substantially sharp corners and also having lateral serrations extending thereacross thoughout its length, each of said four substantially sharp corners of said central ridge abutting a mating substantially sharp corner of said central longitudinally extending recess so that when said spring arms are resiliently and solely holding said jaws together each of said four mated pairs of sharp corners is adapted to tightly engage thin dental articulating paper, whereby thin dental articulating paper when bit upon by a patient does not move between said jaws.

4,340,370
LINEAR MOTION AND POP-UP TARGET TRAINING SYSTEM

Albert H. Marshall, 9154 Bay Point Dr., Orlando, Fla. 32811; Bon F. Shaw, 419 Selkirk Dr., Winter Park, Fla. 32792; Paul D. Grimmer, 1250 S. Pennsylvania Ave., Winter Park, Fla. 32789; Herbert C. Towle, 206 Ranch Rd., Maitland, Fla. 32751, and Gary M. Bond, 305 E. Jersey St., Orlando, Fla. 32806

Filed Sep. 8, 1980, Ser. No. 185,047

Int. Cl.³ F41G *3/26*

U.S. Cl. 434—22 **17 Claims**

1. A weapons training system comprising, in combination:

a modelboard having a terrain surface thereon, said terrain surface having a plurality of apertures, and a plurality of slots located therein;

a plurality of pop-up targets, each of which has first and second inputs, each of which, when activated, pops up through one of the apertures located in the terrain surface of said modelboard, and each of which, when activated, emits therefrom a pulsed beam of infrared light;

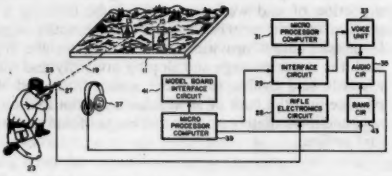
a plurality of linear motion targets, each of which has first, second, third, and fourth inputs, each of which, when activated, moves in either a first predetermined direction, or a second predetermined direction upon the terrain surface of said modelboard, and each of which, when activated, emits therefrom a pulsed beam of infrared light;

first computing means having a reset input, first, second, and third sequence select inputs, a plurality of target activate outputs, a target present output, and an audio output for providing digital logic signals at the target activate outputs thereof so as to effect the activation of each of said linear motion targets and said pop-up targets in a predetermined sequence in accordance with a computer program utilized thereby, for providing a target present signal at the target present output thereof whenever one of said linear motion targets, or one of said pop-up targets is activated thereby, and for providing a movement indicator signal at the audio output thereof whenever one of said linear motion targets or one of said pop-up targets is activated thereby;

first signal generating means having an output for providing at the output thereof a direct current voltage signal;

switching means having a first input connected to the output of said first signal generating means, a second input connected to ground and an output connected to the reset input of said first computing means for passing therethrough the direct current voltage signal provided by said signal generating means so as to initialize the computer program utilized by said first computing means;

first gating means having a plurality of inputs, with the first input thereof connected to the output of said switching means, and the remaining inputs thereof respectively connected to the target activate outputs of said first computing means, a plurality of pop-up target activation out-



puts respectively connected to the first inputs of said pop-up targets, and a plurality of linear motion target activation outputs, one half of which are respectively connected to the first inputs of said linear motion targets, and the other half of which are respectively connected to the second inputs of said linear motion targets adapted for passing therethrough the digital logic signals provided by said first computing means only when said switching means is positioned such that the direct current voltage signal provided by said first signal generating means passes through said switching means to the first input thereof;

second signal generating means having an output for providing at the output thereof a clock signal having a predetermined frequency;

second gating means having a clock input connected to the output of said second signal generating means, a plurality of pop-up target activation inputs respectively connected to the pop-up target activation outputs of said first gating means, a plurality of linear motion target activation inputs respectively connected to the linear motion target activation outputs of said first gating means, a plurality of pop-up target light beam activation outputs respectively connected to the second inputs of said pop-up targets, and a plurality of linear motion target light beam target activation outputs, one half of which are respectively connected to the third inputs of said linear motion targets, and the other half of which are respectively connected to the fourth inputs of said linear motion targets adapted for passing therethrough, in response to the digital logic signals provided by said first computing means, the clock

signal provided by said second signal generating means so as to effect the activation of the pulsed beam of infrared light emitted from the linear motion or pop-up target activated by said first computing means;

an imitation weapon having a trigger mechanism for effecting the simulated firing thereof;

sensing means mounted upon the barrel of said weapon, and having an output for receiving the pulsed beam of infrared light from the linear motion or pop-up target activated by said first computing means, and for providing at the output thereof an analog signal proportional to the amount of infrared light received thereby; and

second computing means having a data input connected to the output of said sensing means, a target present input connected to the target present output of said first computing means, and an audio output for converting the analog signal provided by said sensing means to a digital logic signal, and for processing, in accordance with a predetermined computer program, the digital logic signal converted thereby, and the target present signal provided by said first computing means so as to generate a logic indicator signal indicative of whether said marksman has scored a hit, a miss, or a near miss upon the linear motion or pop-up target activated by said first computing means.

4,340,371

UPPER AND LOWER ARM LOAD SIMULATOR

Gerald J. Kron, Conklin, N.Y., assignor to The United States of America as represented by the Secretary of the Air Force, Washington, D.C.

Filed Mar. 18, 1981, Ser. No. 244,842
Int. Cl.³ G09B *9/00*
U.S. Cl. 434—59 **3 Claims**

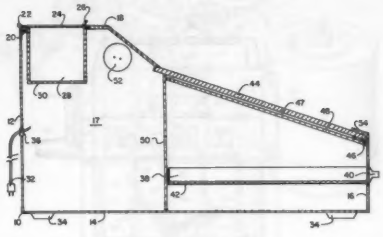
1. An apparatus for use with a flight suit to simulate the loads acting on the arms of an aircraft pilot under high G conditions comprising, a first torque motor of pancake-like configuration attached to the flight suit near the elbow, a plurality of plastic stays and struts positioned on the lower arm portion of the flight suit and operatively attached to said first torque motor, a second torque motor attached to the flight suit near the waistline, an upper arm strut positioned on the flight suit between the shoulder and elbow thereof, a tether line disposed between said second torque motor and the elbow of the flight suit, and a geared windlass operatively connected to said second torque motor whereby the energization of said second torque motor causes said tether line to wind around said geared windlass and thereby load the upper arm to create shoulder torque and retard forward movement of the elbow while the energization of said first torque motor through said plastic stays and struts produces torque at the elbow.

4,340,372

EDUCATIONAL AID

Robert L. Brassine, 3421 Glenn-Don, #2, Anchorage, Ak. 99504

Filed Apr. 17, 1980, Ser. No. 141,014
Int. Cl.³ G09B *11/04*
U.S. Cl. 434—88 **2 Claims**



1. A display device utilizing light as a display medium comprising:

a transparent panel having a first face, a second face, and a side wall and having the characteristic that light entering said panel through said side wall will be emitted through said first face at least when a foreign object is in contact with either of said faces, the longitudinal plane of said transparent panel being in line with a source of light such that said side wall of said transparent panel is permeated by light from said source,

a housing having a hole in one face thereof, said transparent panel being located within said housing in a position in relation to said hole that enables human access to said first face for writing or drawing on said first face,

a background plate located in said housing and spaced below said transparent panel such that a plate-shaped gap to receive materials to be illuminated by said device is formed between said background plate and said transparent panel, wherein said housing has a slit in the side thereof to receive said materials and,

a crayon container, said housing having a hole in the top thereof to receive said crayon container, said crayon container having upper lips extending therefrom to rest on said housing,

wherein said crayon container has a light-impervious lid rotatably attached to a substantially transparent body, said crayon container being located adjacent to said light source so that the walls of said crayon container are illuminated by said light source.

4,340,373

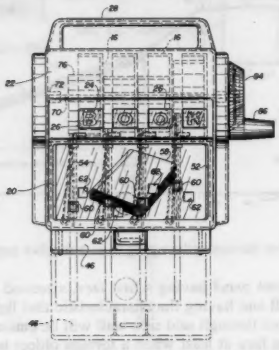
SPELLING MACHINE

Bruce M. D'Andrade, Whitehouse Station, N.J.; Kwok W. Tsui, and Sing C. J. Yuen, both of Hong Kong, Hong Kong, assignors to Arco Industries Ltd., Hong Kong, Hong Kong

Filed Apr. 13, 1981, Ser. No. 253,892
Int. Cl.³ G09B *1/20*
U.S. Cl. 434—174 **17 Claims**

1. A spelling machine comprising in combination, a frame having forward and rearward portions, a shaft extending between opposite sides of said frames in the rearward portion of said frame, a plurality of drums mounted side-by-side upon said shaft and each having a row of letters on the periphery thereof, a housing enclosing said drums and having a horizontal row of openings each located respectively opposite said drums to display a word through the row of openings, a row of slides respectively aligned with each drum and slidably supported by the forward portion of said frame in side-by-side relationship, a series of cards having only pictures of objects thereon having names capable of being spelled by letters on said drums, perforations in said cards in predetermined spaced relation to the edge of the card which is parallel to said shaft when the card is mounted in said frame, projections on said slides adjacent

one end respectively engageable with said perforations in said cards when a card is slidably inserted in said machine, stop means on the opposite ends of said slides, and rotation limiting means on said drums corresponding to letters on said drums and engageable with said stop means on the opposite end portions of said slides to stop rotation of said drums respectively with a letter on each drum which forms part of the word corresponding to the picture on the inserted card, means to rotate said drums upon said shaft in one direction to engage said rotation limiting means with said stop means on said slides, and means to rotate said drums in the opposite direction to starting position.

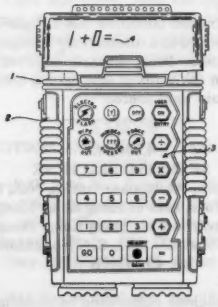


4,340,374

ELECTRONIC LEARNING AID

Bobby G. Culley, Wylie, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.

Continuation of Ser. No. 843,018, Oct. 17, 1977, abandoned.
This application Jan. 28, 1980, Ser. No. 115,840
Int. Cl.³ G09B 7/02, 19/02
U.S. Cl. 434—201 **21 Claims**



1. An electronic learning aid comprising:

problem posing means for posing a plurality of problems to an operator of the learning aid and for determining the correct solutions to the problems being posed;

display means operably associated with said problem posing means for visually presenting to an operator of the learning aid problems posed by said problem posing means, said display means including a plurality of individually actuatable segments visually observable when actuated to show at least the correct response to a problem as posed by said problem posing means;

operator input means for receiving an input from an operator of the learning aid as a proposed solution by the operator to the problem being posed as presented by said display means;

digital logic means including comparator means coupled to said problem posing means, said operator input means and said display means for comparing the input received by said operator input means from the operator with the correct solution to the problem being posed and for providing a difference signal indicative of any differences therebetween;

memory means for storing the number of problems posed to the operator as presented by said display means and the number of correct solutions provided by the input received by said operator input means as determined by said comparator means; and

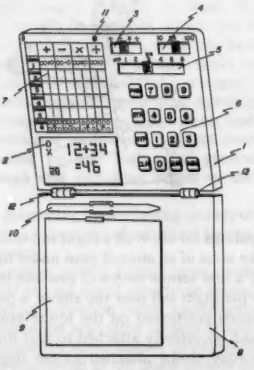
display presentation means operably associated with said actuatable segments of said display means for selectively actuating segments of said display means in response to the number of correct solutions received by said operator input means from the operator as determined by said comparator means in relation to the number of problems posed by said problem posing means as presented by said display means to provide at least two different visually observable display presentations utilizing selectively actuated segments of said display means and indicative of the percentage of correct solutions entered by the operator at said operator input means with respect to the total number of problems posed, each of said different display presentations being a fanciful predetermined actuation of display segments and being capable of operator comprehension as individually related to the percentage of correct solutions entered by the operator at said operator input means.

4,340,375

ELECTRONIC LEARNING AID

Takashi Sakaue, Nara; Koichi Hatta, Yamatokoriyama; Megumi Fukusaki, Osaka, and Yoshiro Kataoka, Yamatokoriyama, all of Japan, assignors to Sharp Kabushiki Kaisha, Osaka, Japan

Continuation of Ser. No. 952,203, Oct. 17, 1978, abandoned.
This application Sep. 19, 1980, Ser. No. 188,865
Claims priority, application Japan, Oct. 20, 1977, 52/126957
Int. Cl.³ G09B 7/00
U.S. Cl. 434—201 **14 Claims**



1. An electronic learning aid for teaching addition, subtraction, multiplication, or division, comprising:

means for automatically generating a multidigit problem having two operands;

first display means for displaying said problems;

input means for introducing an operator calculated answer for said problem;

second display means for displaying information other than said problem including said calculated answer and a remainder of a division problem where present in said an-

swer, said second display means having a sufficient number of digits to display the calculated answer of a multiplication problem in which each operand contains at least two digits;

determination means for detecting whether said calculated answer including remainder, if any, is the correct answer to said generated problem;

clearing means for erasing said operator calculated answer from said second display means to allow the operator to introduce a new operator calculated answer for said problem; and

means for disabling said clearing means when said determination means is enabled.

4,340,376

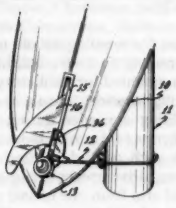
SURFBOARD LOCKING DEVICE

Warren S. Williams, 1084 Evergreen Dr., Encinitas, Calif. 92024

Filed Jul. 30, 1980, Ser. No. 173,855

Int. Cl.³ A63C *15/00*

U.S. Cl. 441—74 **9 Claims**



1. A locking device for surfboards equipped with fin holders wherein a fin retaining screw attaches the surfboard fin to a threaded retaining plate carried by the fin holder, comprising in combination:

a padlock;

an elongated flexible member having a loop or hole at each end thereof;

attachment means for attaching to the surfboard at the base of the surfboard fin engaging the threaded retaining plate carried by the fin holder to provide a point of attachment for lockably connecting the surfboard to another object with the padlock and elongated flexible member; and

means for lockably attaching to the attachment means with the padlock and cooperating with the structure of the surfboard to prevent the unauthorized removal of the attachment means from the surfboard.

4,340,377

SPEED CHANGE DEVICE

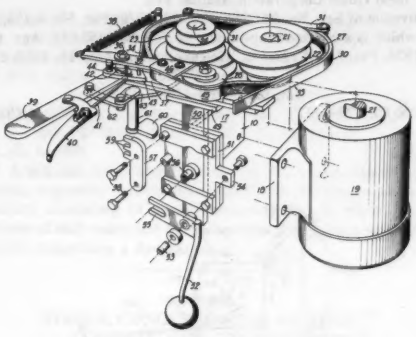
Ted W. Johnson, 214 N. Fifth St., Griffin, Ga. 30223; William R. Hamilton, Cleveland, and Archie I. Hamilton, Atlanta, both of Ga., assignors to Hamilton Bros. Mfg. Co., Atlanta and Ted W. Johnson, Griffin, both of, Ga., a part interest

Filed Jun. 23, 1980, Ser. No. 161,888

Int. Cl.³ F16H *9/06, 7/12*

U.S. Cl. 474—81 **10 Claims**

7. A speed change device comprising a support, a pair of spaced parallel axis oppositely tapering stepped pulleys on the support, rotational driving means for one stepped pulley on the support, a transmission belt engageable with both of said pulleys to transmit power from the driving pulley to the driven pulley at preselected different speeds, a linear slide means on the support movable on a path parallel to the rotational axes of said pulleys, and manually movable means on said slide means operable selectively to tension said belt and hold the belt in power transmitting engagement with said pulleys and to relax the belt and compressively deform it to cause complete separation of the belt from said pulleys whereby the belt is shiftable



with the slide means relative to said pulleys into alignment with selected steps of said pulleys.

4,340,378

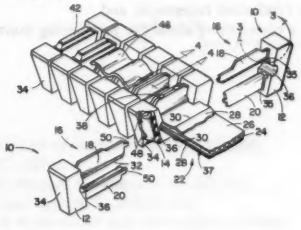
V-BLOCK COMPONENT AND BELT

Paul E. Russ, Sr., Littleton, Colo., assignor to The Gates Rubber Company, Denver, Colo.

Filed Sep. 8, 1980, Ser. No. 184,713

Int. Cl.³ F16G *5/20*

U.S. Cl. 474—244 **4 Claims**



1. A block component for a V-block power transmission belt having a flat band load carrying member, the component comprising:

a generally U-shaped reinforcement member including two spaced and substantially parallel leg members that each have means for engaging the load carrying member, the leg portions interconnected to and coextensive from a diagonal side member; and

a polymeric block integrally molded around the diagonal side member and adjacent portions of the interconnected leg members, the block having a leg member receiving cavity molded juxtaposed and oriented with each of the two leg members, the two cavities extending to the diagonal side member and defining means for receiving and aligning leg members, and the block defining a friction drive surface juxtaposed the diagonal side member.

4,340,379

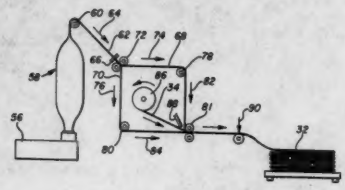
REINFORCED CONTAINER FOR BULK MATERIAL

Robert R. Williamson, Dallas, Tex., assignor to Better Agricultural Goals Corporation, Dallas, Tex.

Division of Ser. No. 941,254, Sep. 11, 1978, Pat. No. 4,253,507, which is a continuation-in-part of Ser. No. 460,053, Apr. 11, 1974, Pat. No. 4,113,146. This application Aug. 18, 1980, Ser. No. 178,715

Int. Cl.[3] B31B *41/00, 39/00*

U.S. Cl. 493—211 4 Claims



1. A method of forming a reinforced receptacle comprising the steps of:

coextruding a plastic multiple-ply cylinder having at least inner and outer cylinder walls;

positioning the multiple-ply cylinder on a mandrel;

folding and adhesively securing together one end of the inner and outer cylinder walls to close one end of the multiple-ply cylinder;

rotating the mandrel and applying an adhesive to the exterior of the multiple-ply cylinder;

wrapping and securing at least one sheet of reinforcing material about the exterior of the multiple-ply cylinder to form a reinforced receptacle; and

securing a cover sheet about the reinforcing material.

4,340,380

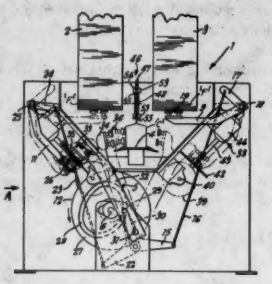
ARTICLE CARRIER ERECTING MECHANISM

Rodney K. Calvert, Dunwoody, Ga., assignor to The Mead Corporation, Dayton, Ohio

Filed Jun. 23, 1980, Ser. No. 161,796

Int. Cl.[3] B31B *1/80*

U.S. Cl. 493—316 10 Claims



1. A mechanism for erecting article carriers of the basket type from a collapsed to a set-up condition, which mechanism comprises an arm mounted for oscillatory movement between two carrier erecting locations, means at each of said erecting locations for holding a carrier during the carrier erecting procedure and wherein said arm includes attachment means for cooperation with each of said holding means to effect the erecting procedure, drive means being provided to continuously oscillate said arm from one of said carrier erecting locations to the other of said carrier erecting locations so that carriers are set up at each of said erecting locations alternately by cooperation between respective ones of said holding and said attachment means, characterized in that said holding means each comprises a pivotal leg having at its free end at least one suction element to extract a collapsed carrier from a supply when the leg is pivoted to a first position, and to hold said collapsed carrier during cooperation with said attachment means when the leg has been pivoted to a second position, each pivotal leg being actuated by said drive means so that one leg is in said first position while the other leg is in said second position.

4,340,381

TEXTURED PILE FABRICS

Frank E. Ehrenfeld, Jr., Morrisville, Pa., assignor to Congoleum Corporation, Kearny, N.J.

Continuation-in-part of Ser. No. 616,307, Sep. 24, 1975, abandoned, which is a continuation of Ser. No. 492,011, Jul. 26, 1974, abandoned, which is a continuation of Ser. No. 267,227, Jun. 28, 1972, abandoned, which is a continuation of Ser. No. 64,475, Aug. 17, 1970, abandoned. This application Feb. 26, 1979, Ser. No. 15,297

Int. Cl.³ D06M *1/14*

U.S. Cl. 8—114.5 4 Claims

1. A process for producng an embossed effect on synthetic pile fabric that comprises applying to at least certain of the upstanding nylon fibers incorporated in the pile of said farbic, trifluoroacetic acid, and subjecting at least said fibers to an elevated temperature for a period sufficient to effect linear contraction thereof.

4,340,382

METHOD FOR TREATING AND PROCESSING TEXTILE MATERIALS

Robert J. Morlino, Port Chester, N.Y.; Quintin W. Decker, St. Albans, and Erich Marcus, Charleston, both of W. Va., assignors to Union Carbide Corporation, Danbury, Conn.

Filed Dec. 16, 1980, Ser. No. 216,980

Int. Cl.³ B01F *17/42;* D06M *13/18*

U.S. Cl. 8—137 7 Claims

1. A method of treating and processing textile fibers and fabrics which comprise contacting said textile materials with an aqueous composition comprising at least about 0.01 percent by weight of a low-foaming, nonionic surface active agent having a block-random structure represented by the formula:

$$R—O—A_x—B—H$$

wherein R is a primary alkyl group having from 7 to 11 carbon atoms, A is oxypropylene groups, x is an integer of from 3 to about 15 with the proviso that the sum of number of carbon atoms in the alkyl group and of ⅓ of value of x is in the range from 10 to about 12, and B is a random mixture of oxyethylene and oxypropylene groups in the molar ratio of oxyethylene to oxypropylene of from about 2:1 to about 5:1 with the total amount of said random mixture of oxyalkylene groups being such that the surface active agent is a liquid having a cloud point in the range from about 20° C. to about 60° C.

4,340,383

PROCESS FOR SIMULTANEOUS DYEING AND BONDING OF SEWING SILKS MADE FROM POLYESTER FILAMENTS

Helmut Röhser, Hofheim am Taunus, Fed. Rep. of Germany, assignor to Hoechst Aktiengesellschaft, Frankfurt am Main, Fed. Rep. of Germany

Filed Feb. 20, 1981, Ser. No. 236,606

Claims priority, application Fed. Rep. of Germany, Feb. 22, 1980, 3006687

Int. Cl.³ D06P *7/00, 1/54, 1/56*

U.S. Cl. 8—494 4 Claims

1. A process for the simultaneous dyeing and bonding of sewing silk consisting of filaments of linear polyesters, which comprises continuously padding the twisted multifilament, during a rewinding operation, with an aqueous dispersion which contains one or more disperse dyestuffs, a binder system of one or more thermally cross-linkable, polymeric components selected from the group consisting of homopolymers and copolymers of acrylic acid derivatives and a catalyst which promotes cross-linking, at a liquor pick-up of 15 to 25%, relative to the weight of the dry filament material, subsequently drying and subjecting the padded twisted multifilament to a heat treatment with hot air of from 190° to 225° C. for a time of from 15 to 60 seconds, continuously afterscouring the sewing silk in a hot alkaline bath containing a reducing agent before winding it up again and finally applying onto it a fiber preparation comprising a usual plasticizer.

4,340,384

COLORED, POROUS FLUOROCARBON MATERIAL AND METHOD FOR ITS MANUFACTURE

Haruo Nomi, Tanashi, Japan, assignor to Junkosha Co., Ltd., Tokyo, Japan

Filed Mar. 4, 1981, Ser. No. 240,321

Claims priority, application Japan, Mar. 12, 1980, 55-31357

Int. Cl.³ D06P *3/00;* B32B *5/14;* D06P *5/00*

U.S. Cl. 8—495 6 Claims

1. A colored, porous material comprising a base material of porous, expanded polytetrafluoroethylene having a microstructure consisting of nodes interconnected by fibrils, the surfaces of said nodes and fibrils having a porous coating layer thereon comprising a dyeable resin.

4,340,385

STABLE, CONCENTRATED, AQUEOUS COMPOSITIONS CONTAINING PARA-SULFOPHENYL-AZO-SUBSTITUTED 1,4-PHENYLENE-AZO-PARA-2-HYDROXYPROPOXYPHENYL DYES

Silvio A. Rodriguez, Bamberg, S.C., and Sigmund C. Catino, deceased, late of Aiken, S.C. (by Esther E. Catino, executor), assignors to Sandoz, Inc., E. Hanover, N.J.

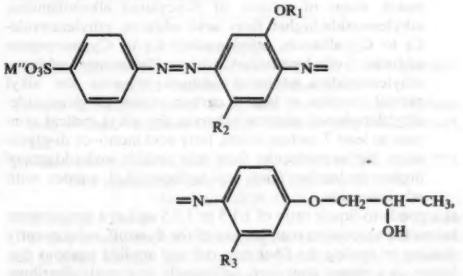
Filed Feb. 23, 1981, Ser. No. 237,278

Int. Cl.³ D06P *67/00*

U.S. Cl. 8—527 8 Claims

1. A stable, concentrated, aqueous composition consisting essentially of, by weight,

5–20% of a compound having the formula:



or a mixture of such compounds, wherein

R_1 is C_{1-4}alkyl,

R_2 is hydrogen, C_{1-4}alkyl or C_{1-4}alkoxy,

R_3 is hydrogen or C_{1-4}alkyl, and

M″ is a monovalent non-chromphoric cation,

2–25% of 2-(2-methoxyethoxy)ethanol,

0–8% of propylene glycol and, to 100%, water.

4,340,386

CATIONIC DYESTUFF PRINTING INKS

Alex Pociluyko, Glen Mills, Pa., assignor to Scott Paper Company, Philadelphia, Pa.

Continuation-in-part of Ser. No. 88,288, Oct. 26, 1979, which is a division of Ser. No. 902,661, May 4, 1978, Pat. No. 4,221,562. This application Nov. 14, 1980, Ser. No. 206,730

The portion of the term of this patent subsequent to Sep. 9, 1997, has been disclaimed.

Int. Cl.³ C09B *67/00;* D06P *3/60, 5/02*

U.S. Cl. 8—541 6 Claims

1. An aqueous, printing fluid containing an aldehyde selected from the group consisting of formaldehyde, glyoxal and glutaraldehyde and a water-soluble, cationic dyestuff having a

functional group capable of reacting with the aldehyde to produce a reaction product dyestuff having improved bleed fastness on cellulosic fibers.

4,340,387

PROCESS FOR THE DYEING OF FIBRE MATERIAL

David G. Evans, Bamford, England; Jacques Zurbuchen, Pratteln, and Willi Leutenegger, Bottmingen, both of Switzerland, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

Continuation of Ser. No. 15,385, Feb. 26, 1979, abandoned, which is a continuation of Ser. No. 890,335, Mar. 27, 1978, abandoned, which is a continuation of Ser. No. 638,134, Dec. 5, 1975, abandoned, which is a continuation of Ser. No. 302,695, Nov. 1, 1972, abandoned. This application Dec. 30, 1980, Ser. No. 221,468

Claims priority, application Switzerland, Nov. 9, 1971, 16260/71; Nov. 9, 1971, 16261/71

Int. Cl.³ D06P *7/00, 5/00*

U.S. Cl. 8—580 **5 Claims**

1. A batch process for the exhaustion dyeing of fiber material, comprising the steps of first applying to the fiber material an aqueous non-foaming dye liquor, containing no thickening agent and containing

(a) a water-soluble or water-dispersible dyestuff having affinity for the fiber material and

(b) a non-foaming amount, in the range of 0.2 to 10 grams per liter, of a surface-active agent which has no cloud point and which is selected from the group consisting of C_{10} to C_{20}-fatty acid soaps, sulfated C_8 to C_{18}-alkanol soaps, sulfated unsaturated higher fatty acid ester soaps, soaps of sulfated ethyleneoxide-C_8 to C_{20}-alkanol adducts, soaps of sulfated esterified polyoxy compounds, soaps of C_8 to C_{20}-primary and secondary alkyl sulfonates, soaps of alkylarylsulfonates having at least 7 carbon atoms in the alkyl chain, soaps of sulfonates of polycarboxylic acid esters, soaps of sulfates of N-acylated alkanolamines, ethyleneoxide-higher fatty acid adducts, ethyleneoxide-C_8 to C_{20}-alkanols, ethyleneoxide-C_8 to C_{20}-mercaptan adducts, ethyleneoxide-C_8 to C_{20}-amine adducts, ethyleneoxide-alkylphenol adducts wherein the alkyl radical contains at least 7 carbon atoms, ethyleneoxide-alkylthiophenol adducts wherein the alkyl radical contains at least 7 carbon atoms, fatty acid mono- or di-glycerides, higher molecular fatty acid amides, and adducts of higher molecular fatty acid-hydroxyalkyl amides with ethyleneoxide,

at a goods-to-liquor ratio of 1:1.5 to 1:2.5 and at a temperature below the absorption temperature of the dyestuff, subsequently shaking or tossing the fiber material and applied aqueous dye liquor, in a closed container, sufficiently to evently distribute the aqueous dye liquor on the fiber material, while still maintaining the temperature below the absorption temperature of the dyestuff, and finally heating the fiber material and the evenly-distributed aqueous dye liquor at a temperature in the range of 95° to 140° C. to exhaust the dyestuff onto the fiber material.

4,340,388

DYEING OF TEXTILE MATERIALS

Xavier Kowalski, St. Louis, Mo., assignor to Monsanto Company, St. Louis, Mo.

Continuation-in-part of Ser. No. 135,424, Mar. 31, 1980, abandoned, which is a continuation-in-part of Ser. No. 67,575, Aug. 17, 1979, abandoned. This application Jul. 10, 1981, Ser. No. 282,313

Int. Cl.³ D06P *1/667*

U.S. Cl. 8—584 **13 Claims**

1. In a process for dyeing textile material with a water-insoluble dye in an aqueous bath, the improvement which comprises including in said bath (a) aminophosphonate selected from the group consisting of aminotri(methylene phosphonic acid) and alkali metal salts thereof and (b) hydroxyphosphonate selected from the group consisting of 1-hydroxyethane-1,1-diphosphonic acid and alkali metal salts thereof in a combined amount sufficient to increase the uniformity of said dyeing and in a mole ratio of (b):(a) sufficient to increase said uniformity above that obtained with the same amount of (a) alone.

4,340,389

PROCESS FOR THE PREPARATION OF WATER-SOLUBLE DYESTUFFS WITH A LOW SALT CONTENT

Konrad Nonn, Leverkusen; Joachim Laser, Cologne; Karlheinz Wolf, Leverkusen; Reinhold Hörnle, Cologne, and Erich Istel, Dormagen, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Filed Apr. 15, 1981, Ser. No. 254,365

Claims priority, application Fed. Rep. of Germany, May 3, 1980, 3017070

Int. Cl.³ C09B *67/54*

U.S. Cl. 8—620 **7 Claims**

1. Process for the preparation of water-soluble dyestuffs with a low salt content, characterised in that the water-soluble dyestuffs are salted out from their aqueous solutions and/or dispersions by adding ammonium salts which are volatile at temperatures of about 40° C. to about 250° C. and under a pressure of about 10 mm Hg to about 760 mm Hg, the dyestuffs are isolated and the volatile salts are volatilised during the drying process.

4,340,390

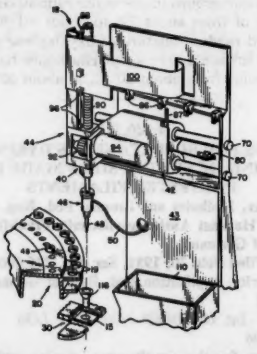
METHOD AND APPARATUS FOR METERING BIOLOGICAL FLUIDS

Richard A. Collins, Fairport; Glenn E. Tersteeg, Honeoye Falls, and Thomas C. Jessop, Webster, all of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Continuation-in-part of Ser. No. 159,563, Jun. 16, 1980, abandoned. This application May 6, 1981, Ser. No. 260,855

Int. Cl.³ G01N *1/14, 1/28*

U.S. Cl. 23—230 B **14 Claims**



8. A process for the precise dispensing of a biological fluid from a metering tip onto a generally planar analysis slide, said process comprising the steps of:

aspirating the fluid into said tip until the tip is partially filled with fluid and has an air space above the fluid;

positioning the tip in a metering position closely adjacent the slide and spaced therefrom between about 0.030 cm and about 0.15 cm;

pressurizing the air and fluid in the tip for a preselected period to force about 10 μl of fluid onto the slide at a fixed, predetermined dispense rate of between about 10 μl/sec and 300 μl/sec; and

maintaining said tip in the metering position between about

0.05 second and about 0.5 second after said period and then withdrawing the tip from said metering position.

4,340,391

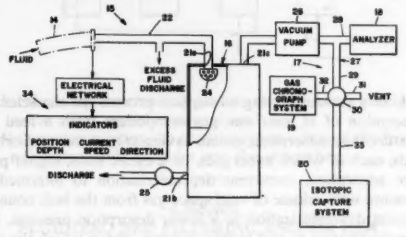
PREDICTING HYDROCARBON POTENTIAL OF AN EARTH FORMATION UNDERLYING A BODY OF WATER BY ANALYSIS OF SEEPS CONTAINING LOW CONCENTRATIONS OF METHANE

Gerard J. Demaison, Orinda, and Isaac R. Kaplan, Sherman Oaks, both of Calif., assignors to Chevron Research Company, San Francisco, Calif.

Continuation-in-part of Ser. No. 135,026, Mar. 28, 1980. This application Jul. 13, 1981, Ser. No. 282,841

Int. Cl.³ G01N *33/24*

U.S. Cl. 23—230 EP **13 Claims**



1. Method of on-site collection and examination of small concentrations of methane dissolved in water so as to predict hydrocarbon potential of an earth formation underlying a body of water, said formation being a source of said methane, comprising:

(i) at a known geographic location continuously sampling said water at a selected flow rate and at a selected depth;

(ii) continuously vacuum separating said water into liquid and gas phases;

(iii) quantitatively separating interfering gas species from said methane at a series of separating stations by conveying said separated gas phase of step (ii) via an air carrier vented to atmosphere and flowing at a known flow rate, in seriation to and through said separating stations;

(iv) quantitatively oxidizing said methane at an oxidizing station;

(v) cryogenically trapping gaseous oxidants of step (iv) in the form of carbon dioxide and water vapor at a trapping station; and

(vi) isotopically analyzing said trapped oxidants of step (v) for carbon and deuterium distribution so as to determine biogenic and/or thermogenic origin of said methane and thereby aid in the evaluation of the hydrocarbon potential of said earth formation.

4,340,392

STABILIZATION OF BENZIDINE-TYPE INDICATORS WITH VARIOUS ENHANCERS

Thomas A. Magers, South Bend, and David L. Tabb, Elkhart, both of Ind., assignors to Miles Laboratories, Inc., Elkhart, Ind.

Division of Ser. No. 93,431, Nov. 13, 1979, Pat. No. 4,290,773. This application Jul. 23, 1981, Ser. No. 285,923

Int. Cl.³ G01N *33/52*

U.S. Cl. 23—230 B **5 Claims**

1. In a composition for detecting the presence of a constituent in a test sample, said composition comprising a benzidine-type indicator, the improvement wherein said composition additionally comprises an enhancer compound having the structure

wherein R′ is H or lower alkyl.

4,340,393

STABILIZATION OF BENZIDINE-TYPE INDICATORS WITH VARIOUS ENHANCERS

Thomas A. Magers, South Bend, and David L. Tabb, Elkhart, both of Ind., assignors to Miles Laboratories, Inc., Elkhart, Ind.

Division of Ser. No. 93,431, Nov. 13, 1979, Pat. No. 4,290,773. This application Jul. 23, 1981, Ser. No. 285,924

Int. Cl.³ G01N *33/52*

U.S. Cl. 23—230 B **5 Claims**

1. In a composition for detecting the presence of a constituent in a test sample, said composition comprising a benzidine-type indicator, the improvement wherein said composition additionally comprises an enhancer compound having the structure

wherein R″ is lower alkylene.

4,340,394

STABILIZATION OF BENZIDINE-TYPE INDICATORS WITH VARIOUS ENHANCERS

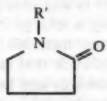
Thomas A. Magers, South Bend, and David L. Tabb, Elkhart, both of Ind., assignors to Miles Laboratories, Inc., Elkhart, Ind.

Division of Ser. No. 93,431, Nov. 13, 1979, Pat. No. 4,290,773. This application Jul. 23, 1981, Ser. No. 285,928

Int. Cl.³ G01N *33/52*

U.S. Cl. 23—230 B **5 Claims**

1. In a composition for detecting the presence of a constituent in a test sample, said composition comprising a benzidine-type indicator, the improvement wherein said composition additionally comprises an enhancer compound having the structure



wherein R′ is H or lower alkyl.

4,340,395

STABILIZATION OF BENZIDINE-TYPE INDICATORS WITH VARIOUS ENHANCERS

Thomas A. Magers, South Bend, and David L. Tabb, Elkhart, both of Ind., assignors to Miles Laboratories, Inc., Elkhart, Ind.

Division of Ser. No. 93,431, Nov. 13, 1979, Pat. No. 4,290,773. This application Jul. 23, 1981, Ser. No. 285,978

Int. Cl.³ G01N *33/52*

U.S. Cl. 23—230 B **5 Claims**

1. In a composition for detecting the presence of a constituent in a test sample, said composition comprising a benzidine-

type indicator, the improvement wherein said composition additionally comprises an enhancer compound having the structure R-CN, wherein R is lower alkyl.

4,340,396

PROCESS FOR DISPOSAL OF AMMONIUM JAROSITE

David W. Robinson-Todd, Billericay, England, assignor to Stablex A.G., Zug, Switzerland

Filed Dec. 16, 1980, Ser. No. 217,207

Claims priority, application United Kingdom, Dec. 21, 1979, 7944286

Int. Cl.[3] C04B 7/02, 7/24

U.S. Cl. 23—293 R 3 Claims

1. A method of solidifying a hazardous sludge comprising significant amounts of ammonium jarosite by admixture with a calcium containing cement powder and a powder material based on aluminum and silica characterized in that the solidification is carried out under mildly basic conditions without the removal of ammonia.

4,340,397

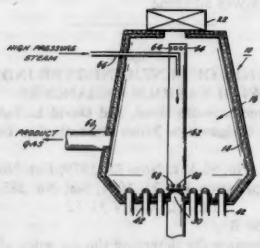
SLAGGING GASIFIER

Helmut Schulz, Harrison, N.Y., assignor to Brandenberg Energy Corporation, Harrison, N.Y.

Filed Oct. 14, 1980, Ser. No. 196,817

Int. Cl.[3] C10J 3/68

U.S. Cl. 48—74 18 Claims



1. A slagging gasifier for the gasification of coal or carbonaceous materials comprising:

a vertical blast furnace including a hearth section at the bottom thereof;

a slag tap hole formed in said hearth section;

means for introducing a charge comprising coal or briquetted carbonaceous materials into said blast furnace near the top thereof such that said charge travels down said blast furnace towards said hearth section;

means for introducing oxidizing gases into said blast furnace near the bottom thereof such that said oxidizing gases flow up said blast furnace as said charge travels down said blast furnace whereby gas and molten slag are formed in said furnace, said slag collecting in said hearth section and exiting via said tap hole;

a first gas removing means comprising a vertically extending conduit located inside said blast furnace and having a first opening near the top of said furnace and a second opening near the bottom of said furnace; and

means for causing steam to flow through said conduit in a direction from said first to said second opening; and a second gas removing means for removing relatively tar-free gases from said blast furnace in the lower portion thereof.

4,340,398

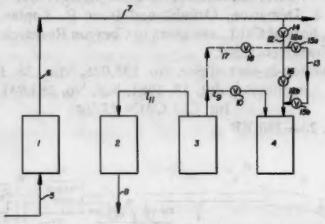
PRESSURE SWING ADSORPTION RECOVERY

Kishore J. Doshi, Mahopac, and Kirit M. Patel, Wappingers Falls, both of N.Y., assignors to Union Carbide Corporation, Danbury, Conn.

Filed May 20, 1981, Ser. No. 265,659

Int. Cl.[3] B01D 53/04

U.S. Cl. 55—25 22 Claims



1. In a pressure swing adsorption process for the selective adsorption of at least one gas component from a feed gas mixture in an adsorption system having at least three adsorbent beds, each of which undergoes, on a cyclic basis, higher pressure adsorption, cocurrent depressurization to intermediate pressure with release of void space gas from the bed, countercurrent depressurization to a lower desorption pressure, and repressurization to said higher pressure, and in which the void space gas released from one bed is passed to the product end of another bed initially at a lower pressure to equalize the pressure therebetween, said other bed also being repressurized by a portion of the product effluent withdrawn from a bed undergoing adsorption at said higher pressure, the improvement comprising:

(a) introducing released void space gas to be used for said pressure equalization purposes directly into the bed undergoing repressurization to equalize the pressure between the beds at an intermediate pressure;

(b) simultaneously passing a portion of the product effluent withdrawn from a bed undergoing adsorption at said higher pressure to an external repressurization storage tank; and

(c) upon completion of said pressure equalization, passing said gas from said repressurization storage tank to said bed undergoing repressurization, together with an additional portion of product effluent withdrawn from a bed undergoing adsorption at said higher pressure, whereby product recovery is enhanced without discontinuity in the substantially uniform flow of product effluent from the adsorption system.

4,340,399

METHOD OF REMOVING ALKALI METAL CONTAMINATION FROM A GASEOUS STREAM

Krishan L. Luthra, Schenectady, N.Y., and Henry S. Spacil, Tokyo, Japan, assignors to General Electric Company, Schenectady, N.Y.

Filed Dec. 22, 1980, Ser. No. 218,991

Int. Cl.[3] B01D 53/12

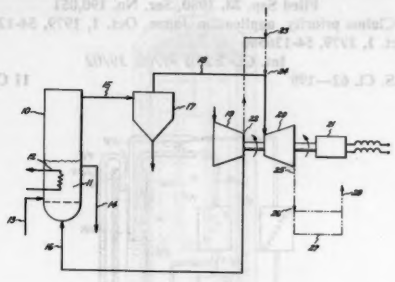
U.S. Cl. 55—72 11 Claims

1. A method of removing alkali metal compounds from a gaseous mixture superheated to a temperature suitable for power generation which contains such alkali metal compounds in vaporous form comprising,

(1) introducing into the superheated gaseous mixture finely divided refractory oxide particles having an average diameter of from 0.005 micron to 1 micron which are utilized in an amount sufficient to provide a total adsorption surface area sufficient to reduce the level of alkali metal contamination of the superheated gaseous mixture to an

acceptable value prior to the introduction of the superheated gaseous mixture into the gas turbine,

(2) introducing the resulting heated gaseous mixture into the gas turbine at a flow rate sufficient to energize the gas turbine,



(3) exhausting the resulting gaseous mixture into a precipitator to effect particle removal, and

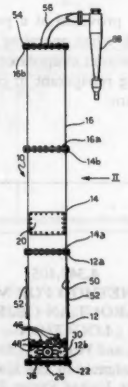
(4) thereafter venting the resulting gases substantially free of refractory oxide particles into the atmosphere.

4,340,400

FLUIDIZED BED FILTERING AND/OR HEAT EXCHANGE APPARATUS PARTICULARLY FOR GASEOUS DISCHARGES FROM INTERNAL COMBUSTION ENGINES AND INDUSTRIAL PLANTS

Armando Campanile, Turin; Giovanni M. Carlomagno, Naples; Angelo De Vita, Moio della Civitella; Giorgio Donsi, Naples; Leopoldo Massimilla, N.ples, and Agostino Scognamiglio, Naples, all of Italy, assignors to Centro Ricerche Fiat S.p.A., Turin and Universita' Degli Studi di Napoli, Naples, both of, Italy

Filed Sep. 9, 1981, Ser. No. 300,528
Claims priority, application Italy, Sep. 10, 1980, 53499/80[U]
Int. Cl.³ B01D *51/00*
U.S. Cl. 55—269 **16 Claims**



1. Fluidised bed filtering and heat exchange apparatus particularly for treating gaseous discharges from internal combustion engines and industrial plants, comprising in combination:

an elongate casing arranged with its longitudinal axis vertical;

a filler of inert, particulate material within said casing;

a gas-feed manifold associated with a lower part of said casing and including at least one distributor duct extending within said casing transverse said axis and a plurality of discharge nozzles spaced apart along said duct and arranged to direct gas fed to said duct downwardly into said casing, whereby, in use, said gas flows upwardly through said casing from said lower part to maintain said filler in a fluidised state;

a cyclone communicating with an upper part of said casing to receive said gas therefrom and to separate agglomerated particles from said gas; and

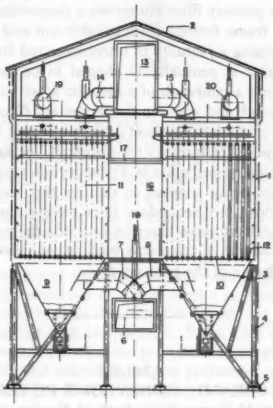
heat-exchange means for cooling the fluidised filler including a plurality of tubes for carrying a heat-exchange fluid, said tubes extending through said casing transverse said axis and being located in said casing so as to be totally immersed in said fluidised filler in use of the apparatus.

4,340,401

BAG-FILTER TYPE DUST COLLECTOR

Jan H. van Weelden, Heiloo, and Adrianus H. Rietvink, Koedijk, both of Netherlands, assignors to Estel Hoogovens B.V., IJmuiden, Netherlands

Filed Oct. 28, 1980, Ser. No. 201,454
Int. Cl.³ B01D *46/04*
U.S. Cl. 55—305 **25 Claims**



6. A filtering installation for removing entrained dust or particles from a gas stream, the installation having a plurality of elongate vertically disposed filter bags enclosed in a housing and vertically suspended by rods depending from suspending beams, each rod having suspension means holding a bag pendant therefrom, the bags having a provision to admit the gas stream at their open lower ends and being capable of accepting a reverse flushing air flow from the top periodically as desired, each bag being closed at its top and maintained taut by a resilient tensioning member acting on the associated rod at a location above the bag;

the installation further comprising a shaking-mechanism to tilt the bags in a gang whenever desired, the shaking mechanism including pivotal tipping means disposed above the tensioning member and cooperating with an upper portion of each rod so as to permit pendular movement of the rod about a substantially horizontal axis passing through said pivotal tipping means;

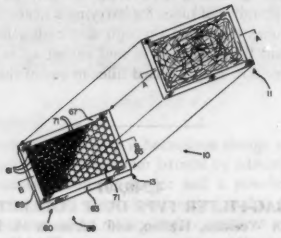
and actuating means disposed outside of said housing to actuate said rods as a gang to cause pendular movement of the rods whereby each bag associated with its rod tilts upon operation of the actuating means.

4,340,402

DISPOSABLE AIR FILTER

George W. Catron, Sacramento, Calif., assignor to Walt R. Philipanko, Sacramento, Calif.

Filed Oct. 14, 1980, Ser. No. 196,612
Int. Cl.[3] B01D *50/00*
U.S. Cl. 55—487 5 Claims



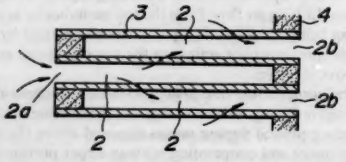
1. A filter system for removing particulate and dirt from the airflow of: heaters and air conditioners comprising: a primary filter and a secondary filter releasably secured thereto and in axial alignment therewith, said secondary filter being the first impact surface of dirty air, such that the airflow passes first through the secondary filter and then through primary filter wherein the primary filter comprises a conventional generally rectangular frame formed from suitably cut and scored cardstock comprising a plurality of interconnected from members, each of which is generally U shaped in cross-section, said frame carrying a sandwich of a metallic layer adapted to pass air therethrough and wherein the secondary filter comprises a generally rectangular thin sheet of filter medium sized substantially the same as the frame of the primary filter, said secondary filter being superposed upon said primary filter, said secondary filter medium being adapted to remove dirt and particulates from an airflow, said secondary filter having a pressure sensitive removable adhesive layer on one side thereof, said adhesive being capable of releasably binding said sheet to the outside of the frame of the primary filter.

4,340,403

CERAMIC HONEYCOMB FILTER

Noboru Higuchi; Teruo Yano, both of Nagoya, and Masahiro Ohnishi, Kuwana, all of Japan, assignors to NGK Insulators, Ltd., Japan

Filed Oct. 15, 1980, Ser. No. 197,025
Claims priority, application Japan, Aug. 28, 1980, 55-117737
Int. Cl.[3] B01D *39/20*; B32B *3/12*; C04B *21/06*
U.S. Cl. 55—523 3 Claims



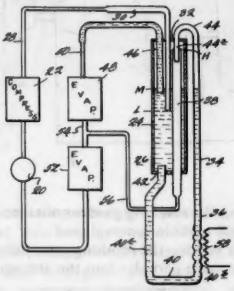
1. A ceramic honeycomb filter having ceramic honeycomb structural body with channels whose ends are selectively sealed by sealing material comprising alumina cement containing calcium oxide (CaO), wherein said alumina cement contains not more than 27% by weight of said calcium oxide (CaO).

4,340,404

REFRIGERATING APPARATUS

Toshiyuki Oonishi, Takatsukishi; Masato Tsutsumi, Osakafu, and Noboru Nakagawa, Osakashi, all of Japan, assignors to Tokyo Shibaura Denki Kabushiki Kaisha, Kawasaki, Japan

Filed Sep. 23, 1980, Ser. No. 190,051
Claims priority, application Japan, Oct. 1, 1979, 54-126565; Oct. 1, 1979, 54-126566
Int. Cl.[3] F25B *41/00, 39/02*
U.S. Cl. 62—198 11 Claims



1. Apparatus for feeding refrigerant in a refrigerator to a first evaporator and a second evaporator connected to receive refrigerant from the first evaporator, comprising:

tank means for storing refrigerant having an inlet for receiving refrigerant, a first outlet for supplying refrigerant to said first evaporator and a second outlet;

conduit means connected to said second outlet for supplying said refrigerant to said second evaporator and extending at least in part in said tank in heat exchange with refrigerant therein, and connected to the interior of said tank means for equalizing gaseous pressures developed in said tank means, said conduit means including a generally U-shaped tube at a lower portion thereof, one end of said tube extending into said tank means to collect said refrigerant; and

vapor pump means provided at a portion of said conduit means for causing, when operating, said refrigerant to be supplied to said second evaporator through said conduit means and causing refrigerant to cease to be supplied to said first evaporator.

4,340,405

APPARATUS AND METHOD FOR MAINTAINING LOW TEMPERATURES ABOUT AN OBJECT AT A REMOTE LOCATION

William A. Steyert, Jr., and William C. Overton, Jr., both of Los Alamos, N. Mex., assignors to The United States of America as represented by the United States Department of Energy, Washington, D.C.

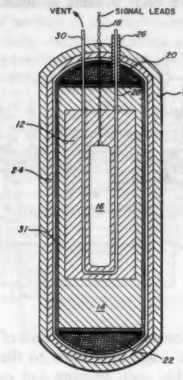
Filed Oct. 29, 1980, Ser. No. 202,041
Int. Cl.[3] F25B *19/00*
U.S. Cl. 62—514 R 13 Claims

1. An apparatus for maintaining cryogenic temperatures about an object for an extended period of time in a remote location comprising:

a housing;

a body comprising a material having a high specific heat at

cryogenic temperatures disposed within said housing, said body comprising an orifice for receiving said object; and



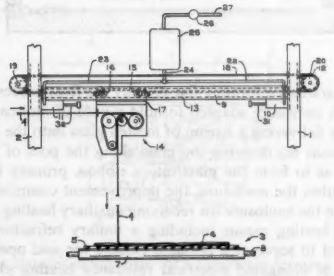
means for conducting cryogenic coolant to said body to lower its temperature to at least about 2 to about 15 K.

4,340,406

PRESSURIZED GAS ACCELERATORS FOR RECIPROCATING DEVICE

Jeffrey A. Neubauer, Boiling Springs, N.C., and Walter J. Reese, North Huntington, Pa., assignors to PPG Industries, Inc., Pittsburgh, Pa.

Filed Dec. 30, 1980, Ser. No. 221,489
Int. Cl.³ C03B *37/025*
U.S. Cl. 65—9 **17 Claims**



1. In an apparatus for reciprocating a movable glass fiber feeding device traversing along an axis having means for supporting and guiding said device along said axis; and means for providing the traversing motion to said device along said axis in a single horizontal plane, the improvement comprising:

(a) a pair of engageable means each having a movable extending member and where each is affixed to an end of said axis so that the movable extended member engages said movable device and is compressed when the movable device approaches the end of the axis, and

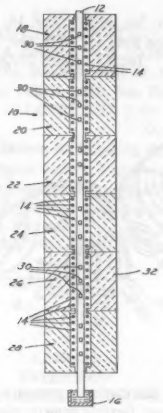
(b) a gas supply source connected to the engageable means to extend the engageable means engaging the movable device to apply acceleration force to said device to initiate reciprocating motion to the device to traverse along said axis in the opposite direction.

4,340,407

METHOD OF FORMING CAVITATED OBJECTS OF CONTROLLED DIMENSION

Paul R. Anderson, Toledo, Ohio, and Wayne J. Miller, Ann Arbor, Mich., assignors to The United States of America as represented by the United States Department of Energy, Washington, D.C.

Filed Feb. 11, 1981, Ser. No. 233,341
Int. Cl.³ C03B *19/10*
U.S. Cl. 65—21.4 **9 Claims**



1. A method of controlling expansion of hollow cellular objects in a blowing operation comprising the steps of:

(a) selecting a cellular plasticizable precursor having one or more closed internal cavities containing a volatile blowing agent, at least a portion of which is impermeable through the cavity walls of said precursor at a selected first temperature above the precursor softening temperature, and then

(b) subjecting said precursor to said selected first temperature in an ambience of gas, at least a portion of which is permeable through the cavity walls of said precursor at said selected first temperature, for a time sufficient for equalization of the partial pressures of said permeable gas internally and externally of said precursor cavities,

such that said precursor expands as a function of said partial pressures of said impermeable gas and independently of partial pressure of said permeable gas.

4,340,408

HIGH SILICA GLASS

Peter W. McMillan, Leamington Spa, and Ronald Maddison, Bedworth, both of England, assignors to National Research Development Corporation, London, England

Filed Apr. 23, 1981, Ser. No. 256,946
Claims priority, application United Kingdom, Apr. 28, 1980, 8013919
Int. Cl.³ C03C *15/00, 3/06*
U.S. Cl. 65—31 **15 Claims**

1. A method for making a high silica glass comprising the steps of:

a. selecting a silica glass which can be separated into two interconnecting phase components;

b. treating the glass to phase separate it into said two interconnecting phase components and removing one phase component to leave a porous silica-rich glass component;

c. forming a layer of metal oxide over the surface of the porous glass; and

d. sintering the metal oxide covered porous glass to a fully dense high silica glass

wherein said metal oxide of step (c) is such that the step (d) sintering can be carried out at a temperature which is lower than the temperature required without the layer of said metal oxide being formed over the surface of the porous glass

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4,340,409

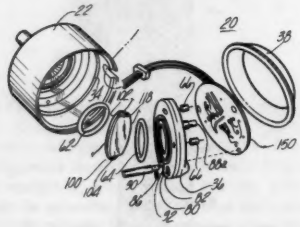
METHOD OF FABRICATING A PRESSURE SENSOR

Mark A. Brooks, Sterling Hts., and Jane Miler, Troy, both of Mich., assignors to The Bendix Corporation, Southfield, Mich.

Continuation of Ser. No. 30,588, Apr. 16, 1979, abandoned. This application Feb. 11, 1981, Ser. No. 233,370

Int. Cl.³ C03B *23/20*

U.S. Cl. 65—43 **17 Claims**



1. A method of fabricating a pressure capsule comprising:

1.1 providing two flexible quartz plates having electrodes thereon, wherein the electrodes form the elements of a pressure sensitive capacitor;

1.2 applying a dielectric sealing glass material, having a predetermined viscosity, to at least one of said quartz plates in the shape of a peripheral seal;

1.3 positioning said quartz plates with said dielectric therebetween in a substantial parallel orientation, at an initial spacing determined by the height of said dielectric;

1.4 decreasing the local pressure proximate the capsule from atmospheric pressure to a lower first pressure level thereby similarly reducing the pressure within the capsule to the first pressure level;

1.5 monotonically increasing the local temperature to a temperature level to reduce the dielectric to a molten glaseous state to encourage outgassing of an organic matter contained in the electrode or dielectric to a molten state;

1.6 increasing the local pressure, in an oxygen enriched environment, to a second pressure level between the range of 1–8 torr of oxygen, to prevent any oxide material in the dielectric from becoming conductive thereby causing an electrical short circuit between the electrodes;

1.7 varying the separation between the plates by clamping the plates together reducing the thickness of the dielectric by increasing the local pressure to a third pressure level after the dielectric has attained said molten state.

4,340,410

FLOAT GLASS FORMING CHAMBER WITH ISOLATED HEATING MEANS

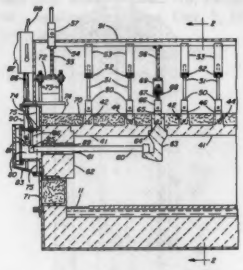
Earl L. May, Irwin, Pa., assignor to PPG Industries, Inc., Pittsburgh, Pa.

Filed Jan. 5, 1981, Ser. No. 222,397

Int. Cl.³ C03B *18/22*

U.S. Cl. 65—182.3 **6 Claims**

1. Apparatus for forming flat glass by the float process comprising an enclosure adapted to hold a pool of molten metal, means for delivering a stream of molten glass onto the molten metal, means for drawing the glass along the pool of molten metal so as to form the glass into a ribbon, and a plurality of electrical resistance heating elements extending into the enclosure, the improvement comprising: a plurality of gas-tight housings, each housing enclosing the exterior terminus of a separate one of the heating elements, a plurality of electrical switch means outside each housing alongside the enclosure,



each switch means corresponding to one of the heating elements, and electrical leads connected to the portion of each heating element within each housing and extending through the housing walls to the respective electrical switch means.

4,340,411

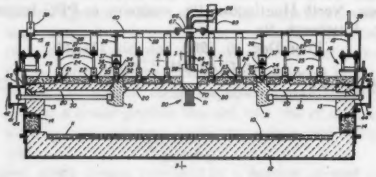
FLOAT GLASS FORMING CHAMBER WITH AUXILIARY HEATING MODULES

Earl L. May, Irwin, Pa., assignor to PPG Industries, Inc., Pittsburgh, Pa.

Filed Jan. 5, 1981, Ser. No. 222,398

Int. Cl.³ C03B *18/22*

U.S. Cl. 65—182.3 **10 Claims**



1. Apparatus for forming flat glass by the float process comprising an enclosure adapted to hold a pool of molten metal, means for delivering a stream of molten glass onto the molten metal, means for drawing the glass along the pool of molten metal so as to form the glass into a ribbon, primary heating means within the enclosure, the improvement comprising: an opening in the enclosure for receiving auxiliary heating means, auxiliary heating means including a unitary refractory base configured to serve as a portable closure for said opening, a plurality of elongated electrical resistance heating elements insulated from each other and extending through the refractory base and into the enclosure, a common electrical connection point carried on the base, and electrical conductor means joining each of the heating elements to the common electrical connection point whereby the auxiliary heating means may be inserted into the enclosure as a prewired module.

4,340,412

FLOAT GLASS FORMING CHAMBER WITH EXTERNALLY SUPPORTED ROOF

Earl L. May, Irwin, Pa., assignor to PPG Industries, Inc., Pittsburgh, Pa.

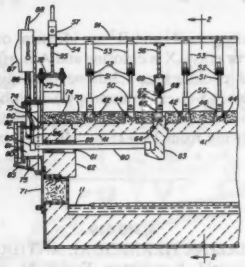
Filed Jan. 5, 1981, Ser. No. 222,396

Int. Cl.³ C03B *18/16*

U.S. Cl. 65—182.5 **14 Claims**

1. Apparatus for forming flat glass by the float process com-

prising an enclosure adapted to hold a pool of molten metal, means for delivering a stream of molten glass onto the molten metal, and means for drawing the glass along the pool of molten metal so as to form the glass into a ribbon, the improvement comprising: a roof portion of the enclosure formed by a plurality of refractory slabs, each slab having a generally flat horizontally extending configuration and having its vertical dimen-



sions minor relative to its horizontal dimensions, at least one horizontally elongated girder means associated with each slab, a horizontally elongated receptacle in each slab in which is received one of the elongated girder means for distributing the weight of the slab, and a plurality of hanger means engaging each girder at spaced apart locations along the length of the girder and extending from the girder upwardly above the slab to means for supporting each hanger from above.

4,340,413

TRANSFER MECHANISM IN A GLASSWARE FORMING MACHINE

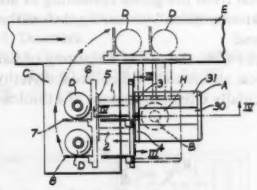
Roger G. Rowland, Southport, England, assignor to E. R. Lattimer Limited, Southport, England

Filed Jan. 2, 1981, Ser. No. 222,136

Claims priority, application United Kingdom, Sep. 27, 1980, 8031299

Int. Cl.³ B65G *47/14*

U.S. Cl. 65—375 **5 Claims**



3. In a transfer mechanism for a glassware forming machine for transferring hot newly-formed glassware from a dead plate to a moving conveyor, the combination of:

a fluid motor assembly characterized by a housing accommodating a pair of stationary cylinders and a respective pair of reciprocating tubular pistons,

a motor support post supported in the housing and disposed on the longitudinal center line between the cylinders of the pair,

a mounting plate being pivotal about a vertical axis through 90° for changing the positions of the pistons to accommodate the motor for either a right hand or left hand disposition with its center line intersecting the swinging axis of the mounting plate,

a fingered pusher plate connected to the outboard free ends of the pistons,

fixing means for mounting the mounting plate

a piston stop bar located centrally of the pusher plate and connected to the pistons for arresting the pistons at the end of the extending stroke; and

parts in the mounting plate and connected fluid supply lines for supplying fluid to the motor.

4,340,414

PLANT HIBERNATION

Walton J. Smith, Rte. 4, Grafton, N.H. 03240

Continuation of Ser. No. 904,889, May 11, 1978, abandoned. This application Feb. 4, 1980, Ser. No. 118,304

Int. Cl.³ C05C *5/02, 5/04*

U.S. Cl. 71—59 **1 Claim**

1. A plant nutrient solution for bringing about hibernation of plants consisting of approximately 3 grams of calcium nitrate and 2 grams of potassium nitrate per gallon of water, said solution containing no more than trace quantities of phosphate.

4,340,415

ESTERS OF 1,2-DIPHENYL-CYCLOHEX-1-ENE-4-CARBOXYLIC-ACID

Verena Laanio, Arisdorf; Werner Föry, Basel, and Rolf Schurter, Binningen, all of Switzerland, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

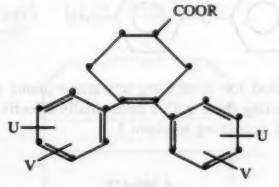
Division of Ser. No. 918,212, Jun. 22, 1978, Pat. No. 4,229,207, which is a continuation-in-part of Ser. No. 713,477, Aug. 11, 1976, abandoned. This application May 19, 1980, Ser. No. 151,033

Claims priority, application Switzerland, Aug. 15, 1975, 01664/75; Aug. 15, 1975, 01665/75; Aug. 15, 1975, 01666/75

Int. Cl.³ A01N *37/08*

U.S. Cl. 71—76 **18 Claims**

1. A method for inhibiting the growth of monocotyledonous and dicotyledonous plants, which comprises applying to such plants an effective amount of an ester of 1,2-diphenyl-cyclohex-1-ene-4-carboxylic acid of the formula



wherein

R is C_1–C_7 alkyl optionally substituted by halogen, nitro, C_1–C_4 alkoxy, C_3–C_8 cycloalkyl, by phenyl or phenoxy unsubstituted or substituted by chlorine, bromine, C_1–C_4 alkyl or C_1–C_4 alkoxy; C_3–C_7 alkenyl optionally substituted by chlorine, bromine or C_1–C_4 alkyl; C_3–C_7 alkynyl; C_3–C_6 cycloalkyl optionally substituted by chlorine; phenyl or benzyl unsubstituted or substituted by chlorine, bromine, C_1–C_4 alkyl, C_1–C_4 alkoxy, nitro, amino, mono- or di-(C_1–C_4)alkylamino or trifluoromethyl; and

U and V are each selected from the group consisting of hydrogen, chlorine, bromine, C_1–C_4 alkyl, C_1–C_4 alkoxy, nitro and trifluoromethyl.

4,340,416

N-SUBSTITUTED TRIESTERS OF N-PHOSPHONOMETHYLGLYCINE

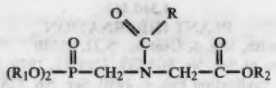
Gerard A. Dutra, Ladue, Mo., assignor to Monsanto Company, St. Louis, Mo.

Division of Ser. No. 63,297, Aug. 2, 1979, Pat. No. 4,261,727. This application Apr. 2, 1981, Ser. No. 250,525

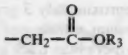
Int. Cl.³ A01N *57/14;* **C07F** *9/40*

U.S. Cl. 71—86 **12 Claims**

1. A compound of the formula



wherein R is a



group wherein R_3 is lower alkyl, R_1 is phenyl or lower alkoxyphenyl; and R_2 is lower alkyl.

4,340,417

HERBICIDAL 1-(5-[2-CHLORO-4-(TRIFLUOROMETHYL)PHENOXY]-2-NITROBENZOYL)-3-ISOPROPYL-2,1,3-BENZOTHIADIAZIN-4-ONE,2,2-DIOXIDE

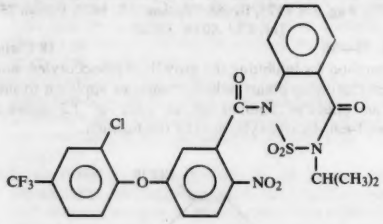
Robert J. Theissen, Bridgewater, N.J., assignor to Rhone-Poulenc Agrochimie, Lyons, France

Continuation-in-part of Ser. No. 117,732, Feb. 1, 1980, abandoned. This application Jun. 23, 1981, Ser. No. 276,619

Int. Cl.³ C07D *285/16;* **A01N** *43/88*

U.S. Cl. 71—91 **4 Claims**

1. A herbicidal compound of the formula



(I)

2. A method for combating unwanted plants which comprises contacting them with a herbicidally effective amount of a compound according to claim 1.

4,340,418

HERBICIDAL AGENTS BASED ON N-AZOLYLMETHYLACETANILIDES AND CYCLOHEXANE-1,3-DIONE DERIVATIVES

Karl Eicken, Wachenheim, and Bruno Wuerzer, Otterstadt, both of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Fed. Rep. of Germany

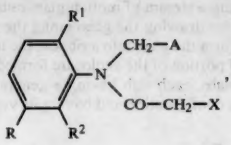
Filed May 15, 1980, Ser. No. 149,965

Claims priority, application Fed. Rep. of Germany, May 19, 1979, 2920300

Int. Cl.³ A01N *43/56*

U.S. Cl. 71—92 **4 Claims**

1. A herbicidal agent comprising a herbicidally effective amount of a mixture of an N-azolylmethylhaloacetanilide of the formula



I

where R is hydrogen, R^1 and R^2 are identical or different and each is methyl or ethyl, X is chlorine and A is pyrazol-1-yl, and the substituted cyclohexane-1,3-dione derivative 2-(1-ethoxyaminobutylidene)-5-(2-ethylthiopropyl)-cyclohexane-1,3-dione the ratio of N-azolylmethylhaloacetanilide to cyclohexane-1,3-dione being from 1:0.125 to 1:10 parts by weight.

4,340,419

S-TRIAZINE HERBICIDAL ANTIDOTES

Alan A. MacDonald, Kensington; Ferenc M. Pallos, Walnut Creek, and Eugene G. Teach, El Cerrito, all of Calif., assignors to Stauffer Chemical Company, Westport, Conn.

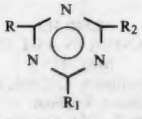
Filed Jul. 7, 1980, Ser. No. 165,994

Int. Cl.³ A01N *25/32*

U.S. Cl. 71—93 **13 Claims**

1. A herbicidal composition comprising

(a) a non-phytotoxic antidotally effective amount for monocotyledon crops of a compound of the formula



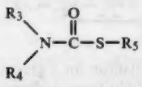
in which

R is selected from the group consisting of haloalkyl having 1–4 carbon atoms and alkylamine having 1–4 carbon atoms;

R_1 is selected from the group consisting of alkyl having 1–4 carbon atoms, haloalkyl having 1–4 carbon atoms, and chloro; and

R_2 is selected from the group consisting of haloalkyl having 1–4 carbon atoms and N-dichloroacetylethylamino; and

(b) a herbicidally effective amount of a thiolcarbamate of the formula



in which

R_3 is selected from the group consisting of alkyl having 1–6 carbon atoms and alkenyl having 2–6 carbon atoms;

R_4 is selected from the group consisting of alkyl having 1–6 carbon atoms, alkenyl having 2–6 carbon atoms, cyclohexyl and phenyl; or

R_3 and R_4 together form a hexamethylene group;

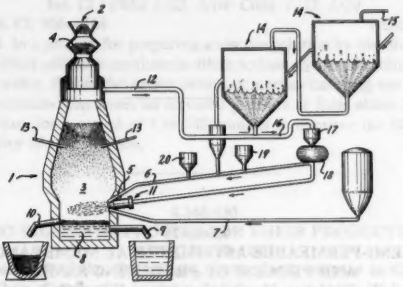
R_5 is selected from the group consisting of alkyl having 1–6 carbon atoms, haloalkyl having 1–4 carbon atoms, cycloalkyl having 5–10 carbon atoms, phenyl, substituted phenyl, wherein the substituents are alkyl having 1–4 carbon atoms, haloalkyl having 1–4 carbon atoms, and halo, benzyl, and substituted benzyl, wherein the substituents are alkyl having 1–4 carbon atoms, haloalkyl having 1–4 carbon atoms and halo.

4,340,420

METHOD OF MANUFACTURING STAINLESS STEEL

Sven Santen, Hofors, and John O. Edström, Stocksund, both of Sweden, assignors to SKF Steel Engineering Aktiebolag, Hofors, Sweden

Filed Oct. 24, 1980, Ser. No. 200,151
Claims priority, application Sweden, Jun. 10, 1980, 8004311
Int. Cl.[3] C22B 4/00
U.S. Cl. 75—10 R 11 Claims



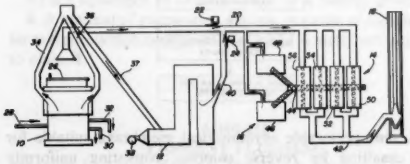
1. A two step method of manufacturing chromium steel comprising the first step of injecting a starting material in the form of fine grains and containing chromium oxide and iron oxide into the lower portion of a reactor having an upper and a lower portion; said reactor containing a solid reducing agent, passing said starting material into a reduction zone within said lower portion, said reduction zone being maintained by the use of a plasma generator adjacent thereto, simultaneously injecting carbon and/or hydrocarbon fuel into said reduction zone, substantially instantaneously reducing and melting said starting material in said reduction zone, and removing the melted and reduced chromiferous product from the bottom of the reactor, and a second step of further refining the chromiferous product to produce chromium steel.

4,340,421

METHOD OF RECOVERING LEAD FROM LEAD-ACID BATTERIES

Svend Bergsoe, Glostrup, Denmark, assignor to Paul Bergsoe and Son A/S, Denmark

Filed Oct. 9, 1980, Ser. No. 195,435
Int. Cl.[3] C22B 7/02, 13/00
U.S. Cl. 75—25 11 Claims



1. A process for recovering lead from scrap batteries comprising; inserting a charge containing whole unbroken batteries into a blast furnace, said blast furnace containing a smelting zone to produce molten metallic lead, said charge descending into said smelting zone, introducing air into said furnace for maintaining combustion within said smelting zone, said furnace being characterized such that the ratio of cubic meters per hour of air, measured at standard temperature and pressure, entering the furnace to the shaft area in square meters does not exceed about 1000, whereby gases formed during the combustion in the smelting zone rise slowly countercurrent with said charge to provide a long contact time between said gases and the descending charge, causing the heated gases to lose heat and form at the top of the furnace a cool temperature area sufficient to condense substantial quantities of lead which has been volatilized, reducing the output of flue dust to about 2–3% by weight of said charge, said charge further including iron containing material, the amount of said iron containing material being adjusted to the sulfur content of the total charge so that said iron reacts with sulfur compounds to form iron sulphide matte.

4,340,422

POWDERY DESULFURIZER COMPOSITION

Atsushi Takahashi, Tokyo; Yoshiharu Muratsubaki, Uozu, and Hiroyuki Ishizuka, Mitaka, all of Japan, assignors to Nippon Carbide Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed May 13, 1981, Ser. No. 263,306
Claims priority, application Japan, May 20, 1980, 55/65924
Int. Cl.[3] C21C 7/02
U.S. Cl. 75—58 6 Claims

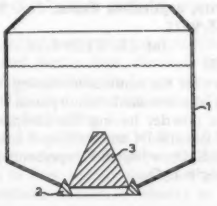
1. A powdery desulfurizer composition for injection desulfurization of molten iron, said composition comprising quicklime, diamide lime and calcium carbide the total amount of quicklime and diamide lime being 90 to 60% by weight and the amount of calcium carbide is 10 to 40% by weight with the amount of quicklime being 30 to 80 parts by weight and the amount of diamide lime being 70 to 20 parts by weight provided that the total amount of quicklime and diamide lime being taken as 100 parts by weight and the quicklime being quicklime obtained by calcining diamide lime.

4,340,423

CHARGING OF ZINC-SMELTING BLAST FURNACES

Michael W. Gammon, Whitchurch, England, assignor to Metallurgical Processes Limited and I.S.C. Smelting Limited, both of Nassau, The Bahamas

Filed Feb. 26, 1981, Ser. No. 238,440
Claims priority, application United Kingdom, Mar. 21, 1980, 8009723
Int. Cl.[3] C22B 19/08
U.S. Cl. 75—87 3 Claims



1. In a method of charging a zinc-smelting blast furnace with alternate loads of coke and zinc oxide material from a hopper by means of a central bell/annular bell charging device, in which the annular bell is lowered by a predetermined fixed distance, the improvement comprising that the time ratio of the time taken to discharge the hopper contents to the time taken for the annular bell to be lowered the predetermined fixed distance is less than unity.

4,340,424
FERRITIC STAINLESS STEEL HAVING EXCELLENT MACHINABILITY AND LOCAL CORROSION RESISTANCE

Koshi Katoh, Tsushima, and Takayoshi Shimizu, Tokai, both of Japan, assignors to Daido Tokushuko Kabushiki Kaisha, Nagoya, Japan

Continuation of Ser. No. 39,456, May 16, 1979, abandoned, which is a continuation of Ser. No. 888,395, Mar. 20, 1978, abandoned, which is a continuation of Ser. No. 737,411, Oct. 29, 1976, abandoned, which is a continuation-in-part of Ser. No. 554,140, Feb. 28, 1975, abandoned. This application Jun. 16, 1980, Ser. No. 159,695

Claims priority, application Japan, Apr. 23, 1974, 49-45853; May 1, 1974, 49-49439

Int. Cl.³ C22C *38/24, 38/30*

U.S. Cl. 75—126 E **4 Claims**

1. A ferritic stainless steel having excellent machinability and local corrosion resistance, consisting essentially of less than 0.020% carbon, less than 0.050% nitrogen, 0.4–0.7% silicon, less than 3.0% manganese, 23–28% chromium, 1.0–5.0% molybdenum, 0.3–3.0% vanadium, 0–5.0% nickel; and at least one element selected from the group consisting of 0.05–0.20% sulfur, 0.05–0.30% selenium, 0.05–0.30% tellurium, 0.01–0.20% lead, 0.01–0.20% bismuth, and 0.005–0.065% calcium, the balance being substantially all iron.

4,340,425
NICRAL TERNARY ALLOY HAVING IMPROVED CYCLIC OXIDATION RESISTANCE

Robert A. Frosch, Administrator of the National Aeronautics and Space Administration, with respect to an invention of; Charles A. Barrett, Seven Hills; Carl E. Lowell, Lakewood, both of Ohio, and Abdus S. Khan, Palm Beach Garden, Fla.

Filed Oct. 23, 1980, Ser. No. 199,769

Int. Cl.³ C22C *19/05*

U.S. Cl. 148—428 **3 Claims**

1. A nickel base terniary alloy system in the $\beta+\gamma$ and β regions having improved resistance to cyclic oxidation in air at an elevated temperature between about 1100° C. and about 1200° C. consisting essentially of
about 10 a/o to about 20 a/o chromium,
about 17.5 a/o to about 50 a/o aluminum,
about 0.13 w/o zirconium, and
the balance nickel.

4,340,426
ADDITIVES FOR CONTINUOUS CASTING OF STEEL

Seikichi Tabei, and Shigeo Sasaki, both of Koriyama, Japan, assignors to Nippon Chemical Industrial Co., Ltd., Tokyo, Japan

Filed Jun. 9, 1980, Ser. No. 158,033

Claims priority, application Japan, Jun. 9, 1979, 54/72664; Feb. 1, 1980, 55/9972

Int. Cl.³ C22B *9/10*

U.S. Cl. 75—257 **17 Claims**

1. An additive for the continuous casting of steel comprising as a base material a non-acidic amorphous fluorine-containing calcium silicate powder having the composition $xCaO.SiO_2.yF$, wherein $1.0 \leqq x \leqq 1.4$ and $0.05 \leqq y \leqq 1.5$, containing up to 10% by weight R_2O_3, wherein R represents Al and Fe, and up to 1.5% by weight P_2O_5.

4,340,427
WELL CEMENTING PROCESS AND GASIFIED CEMENTS USEFUL THEREIN

David L. Sutton, Duncan, Okla., assignor to Halliburton Company, Duncan, Okla.

Division of Ser. No. 38,022, May 10, 1979, Pat. No. 4,304,298. This application Mar. 3, 1980, Ser. No. 126,613

Int. Cl.³ C04B *1/00*

U.S. Cl. 106—87 **20 Claims**

1. An increased compressibility cement composition for sealing a subterranean zone penetrated by a bore hole having a portion pressurized by an adjacent gas source comprising an aqueous hydraulic cement, an effective amount of a gas generating agent for generating a stable volume of gas sufficient to increase the compressibility under such downhole conditions by at least 25% in relation to the initial compressibility of the same composition not containing said gas generating agent and at least 0.05 weight percent, based on dry cement, of a chemical fluid loss control additive.

4,340,428
SEMI-PERMEABLE ASYMMETRICAL MEMBRANCE AND PROCESS OF PRODUCING SAME

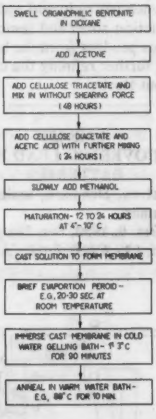
Karl W. Böddeker, Hamburg, and Axel Wenzlaff, Escheburg, both of Fed. Rep. of Germany, assignors to Gesellschaft für Kernenergieverwertung in Schiffbau und Schiffahrt GmbH, Fed. Rep. of Germany

Continuation-in-part of Ser. No. 28,262, Apr. 9, 1979, abandoned. This application Jun. 30, 1980, Ser. No. 164,027

Claims priority, application Fed. Rep. of Germany, May 10, 1978, 2820265

Int. Cl.³ B29D *27/04*

U.S. Cl. 106—122 **10 Claims**


SWELL ORGANOPHILIC BENTONITE IN DIOXANE
ADD ACETONE
ADD CELLULOSE TRIACETATE AND MIX IN WITHOUT SHEARING FORCE (48 HOURS)
ADD CELLULOSE DIACETATE AND ACETIC ACID WITH FURTHER MIXING (24 HOURS)
SLOWLY ADD METHANOL
MATURATION- 12 TO 24 HOURS AT 6°-10° C.
CAST SOLUTION TO FORM MEMBRANE
BRIEF EVAPORTION PERIOD - E.G. 20-30 SEC. AT ROOM TEMPERATURE
IMMERSE CAST MEMBRANE IN COLD WATER GELLING BATH- 1°-3°C FOR 90 MINUTES
ANNEAL IN WARM WATER BATH- E.G., 88°C FOR 10 MIN.

1. A semi-permeable asymmetrical membrane suitable for water desalting by reverse osmosis, consisting uniformly throughout the whole thereof essentially of cellulose acetate polymers and swelling medium but in the form of a relatively thin nonporous layer and a thicker porous layer, said membrane being the product of a process characterized by:

A. working organophilic aluminum silicate bentonite into an organic medium which is a solvent for at least a portion of said cellulose acetate polymers, to swell the organophilic bentonite; and

B. adding the swollen organophilic bentonite to cellulose acetate polymers and solvents for the same to form a casting solution from which the membrane is cast and wherein the swollen organophilic bentonite constitutes between about 0.07% and 0.2% by weight of the complete casting solution.

4,340,429

PROCESS FOR IMPROVING THE FILTERABILITY OF VISCOSES

Reinhart Mayer, Kelheim, Fed. Rep. of Germany, assignor to Hoechst Aktiengesellschaft, Frankfurt am Main, Fed. Rep. of Germany

Continuation of Ser. No. 3,909, Jan. 15, 1979, abandoned. This application Sep. 29, 1980, Ser. No. 192,013

Claims priority, application Fed. Rep. of Germany, Jan. 17, 1978, 2801820

Int. Cl.³ C08J 3/02, 3/04; C08L 1/22, 1/24

U.S. Cl. 106—164 7 Claims

1. In a process for preparing a viscose solution by dissolving an alkali cellulose-xanthate in dilute sodium hydroxide solution or water, the improvement which comprises carrying out the dissolution step under an elevated pressure of from about 2 to 30 bars for a period of 1 to 180 minutes to improve the filterability of said solution.

4,340,430

AZO PIGMENTS, PROCESS FOR THEIR PRODUCTION AND THEIR USE

Armand Rouèche, Bottmingen, Switzerland, assignor to Ciba-Geigy Corporation, Ardsley, N.Y.

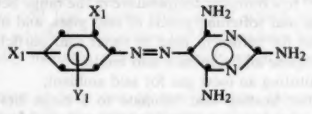
Filed Aug. 4, 1980, Ser. No. 174,994

Claims priority, application Switzerland, Aug. 17, 1979, 7559/79

Int. Cl.³ C08L 1/08; C09B 17/00

U.S. Cl. 106—176 9 Claims

1. An azo pigment of the formula



wherein

one X_1 is a nitro group, a chlorine atom, a sulfo group or a trifluoromethyl group, and the other X_1 is a group of the formula

$$-X\ominus \frac{M^{n\oplus}}{n},$$

X is a SO_3 or CO_2 group, M is a bivalent metal atom, n is 2, and

Y_1 is a hydrogen or chlorine atom or a methyl group.

8. A method of pigmenting organic material of high molecular weight, which comprises the use of a metal salt according to claim 1.

4,340,431

PIGMENT FLUSHING

Manohar L. Arora, Zeeland; Timothy A. Overway, Hamilton, and Thomas E. Foye, Jenison, all of Mich., assignors to BASF Wyandotte Corporation, Wyandotte, Mich.

Filed Nov. 10, 1980, Ser. No. 205,138

Int. Cl.³ C09C 3/10; C09D 17/00

U.S. Cl. 106—262 11 Claims

1. In the method for transferring an organic pigment from an aqueous pulp of the pigment to a water-immiscible organic vehicle by mixing said aqueous pulp and said vehicle until a major portion of the water present in said pulp separates, the improvement comprising incorporation a petroleum sulfonate additive and at least one additive selected from the class consisting of sulfonated sperm oil, sulfated sperm oil, and mixtures thereof with said vehicle and said pigment.

4,340,432

METHOD OF MANUFACTURING STAINLESS FERRITIC-AUSTENITIC STEEL

Allan Hede, Surahammar, Sweden, assignor to ASEA Aktiebolag, Västeros, Sweden

Filed May 11, 1981, Ser. No. 262,431

Claims priority, application Sweden, May 13, 1980, 8003567

Int. Cl.³ B22F 3/16

U.S. Cl. 148—11.5 P 6 Claims

1. A method of manufacturing stainless ferritic-austenitic steel containing up to 0.10 percent of C, up to 4.0 percent of Si, up to 2.0 percent of Mn, from 20 to 30 percent of Cr, from 3 to 8 percent of Ni, from 1.0 to 6.0 percent of Mo, up to 0.5 percent of V and up to 4.0 percent of Cu, the remainder being iron and unavoidable impurities in unimportant amounts comprising the steps of:

preparing a melt of the steel with a nitrogen content higher than about 0.10 percent and an austenite content not less than about 20 percent,

gas atomizing said melt to form a powder,

compacting said powder into a body,

heat-treating said body at a temperature of from about 950° to about 1250° C., and

cooling the heat-treated body in water, oil or air.

4,340,433

METHOD OF HEAT TREATING ARTICLES

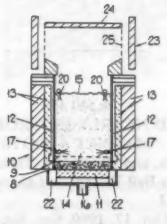
Brian Harding, West Bromwich, England, assignor to CAN-ENG Holdings Limited, Ontario, Canada

Continuation-in-part of Ser. No. 831,308, Sep. 7, 1977, abandoned. This application Jan. 16, 1980, Ser. No. 112,576

Claims priority, application United Kingdom, Sep. 16, 1976, 38339/76

Int. Cl.³ C21D 1/74

U.S. Cl. 148—16 3 Claims



1. A method of heat treating articles by immersing them in a fluidised bed comprising a container having a porous base and containing a mass of refractory particles, comprising the steps of:

arranging a layer of said refractory particles immediately adjacent to said porous base, the layer being formed of particles having a sufficiently larger mean diameter so as to remain unfluidised, the remainder of said refractory particles being fuidisable;

supplying a non-stoichiometric fluidising and treatment medium to the underside of said porous base and allowing said medium to flow therethrough and into said mass of refractory particles at such a velocity as will leave said layer of larger mean diameter refractory particles unfluidised while forming a fluidised layer thereabove from said remainder of said refractory particles;

introducing a gaseous medium into said container at a position above and spaced from said porous base, at least one of: said gaseous medium; and, a mixture of said gaseous medium and said fluidising medium, being a combustible product; and,

igniting said combustible product and thereby heating said fluidised layer of refractory particles, whereby said porous base is thermally shielded from said fluidised layer by

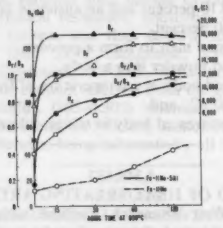
said layer of larger mean diameter unfluidised particles which remain substantially cooler than the fluidised particles.

4,340,434

HIGH REMANENCE FE-MO-NI ALLOYS FOR MAGNETICALLY ACTUATED DEVICES

Sungho Jin, Gillette, and Thomas H. Tiefel, Rockaway, both of N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Aug. 18, 1980, Ser. No. 178,832
Int. Cl.³ C04B *35/00*
U.S. Cl. 148—31.55 **3 Claims**



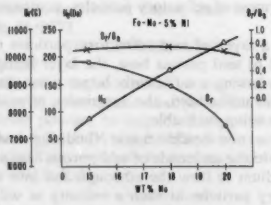
1. Magnetic alloy consisting essentially of an amount of at least 99.5 weight percent Fe, Mo, and Ni, Mo being in the range of 2–26 weight percent of said amount, Ni being in the range of 0.5–15 weight percent of said amount, said alloy having magnetic squareness ratio greater than or equal to 0.9, and said alloy having remanence greater than or equal to 13000 gauss.

4,340,435

ISOTROPIC AND NEARLY ISOTROPIC PERMANENT MAGNET ALLOYS

Sungho Jin, Gillette, and Thomas H. Tiefel, Rockaway, both of N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Oct. 17, 1980, Ser. No. 197,970
Int. Cl.³ C04B *35/00*
U.S. Cl. 148—31.57 **4 Claims**



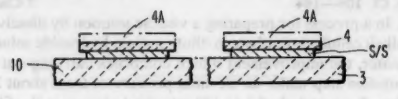
1. Magnetically isotropic or nearly isotropic permanent magnet alloy having a remanent magnetic induction which is greater than or equal to 7000 gauss, a coercive force which is greater than or equal to 50 oersted, and a magnetic squareness ratio which is less than 0.9 CHARACTERIZED IN THAT an amount of at least 95 weight percent of said alloy consists of Fe, Mo, and Ni, Mo being in the range of 10–40 weight percent of said amount, and Ni being in the range of 0.5–15 weight percent of said amount.

4,340,436

PROCESS FOR FLATTENING GLASS-CERAMIC SUBSTRATES

Derry J. Dubetsky, Wappingers Falls; Lester W. Herron, Hopewell Junction, and Raj N. Master, Wappingers Falls, all of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Jul. 14, 1980, Ser. No. 167,975
Int. Cl.³ B32B *31/24*; C03B *32/00*; C04B *39/00*
U.S. Cl. 156—89 **24 Claims**



1. A method of forming a glass-ceramic composite structure with a copper based conductor pattern embedded therein comprising:

A. forming at least one green sheet comprised of a thermoplast organic binder having dispersed therein particles of a crystallizable glass having a crystallizing temperature below the melting point of copper;

B. forming on a surface of a first said green sheet a pattern of a copper based conductor forming composition;

C. superimposing a second said green sheet on said surface of said first sheet to sandwich said pattern therebetween;

D. laminating said sheets together;

E. heating said laminate in an ambient of hydrogen and H_2O in a ratio of H_2/H_2O in the range of about 10^{-4} to about $10^{-6.5}$ to a burn-out temperature in the range between the anneal and softening points of said glass, and maintained thereat for sufficient time to sinter said particles and to decompose and eliminate said binder;

F. substituting an inert gas for said ambient;

G. further heating said laminate to a range between the coalescent and crystallization temperatures of said glass to partially coalesce said glass of said laminate;

H. interrupting the last said heating to superimpose a coextensive inert non-adherent removable light weight planar platen on said laminate, with said platen having a weight in the range below an upper level causing extrusion of said laminate during firing or restricting lateral shrinkage of said laminate and at least at a lower level preventing vertical movement of said laminate during firing;

I. further heating said laminate and superimposed platen, under sole pressure of said platen, through the coalescing temperatures of said glass to the crystallization temperature thereof to convert said glass into a glass-ceramic structure and;

J. removing said platen from said glass-ceramic structure.

4,340,437

METHOD OF PRODUCING A MOISTURE-INSENSITIVE MOLDED LEATHER HOLSTER

William H. Rogers, Jacksonville, Fla., assignor to Rogers Holster Co., Inc., Jacksonville, Fla.

Filed Mar. 10, 1980, Ser. No. 129,174
Int. Cl.³ B29C *19/00*; B29F *1/10, 25/00*; A45C *1/00*
U.S. Cl. 156—224 **21 Claims**

1. A method of producing a moisture-insensitive molded leather holster having a closed front and back and an open top and a fully lined leather cavity for a holsterable object comprising preparing a laminate of at least one layer of leather integrally bonded to a layer of heat moldable thermoplastic material, and producing a leather holster heating said holster to the molding temperature of said thermoplastic material, opening said open top of said holster and inserting a forming core having a shape conforming to the holsterable object through said open top to lie between said front and back within said

fully lined leather cavity of said holster, applying pressure from the outside of said holster to closely mold said laminate to said forming core while said temperature is reduced to a level below said molding temperature, and forcibly removing said forming core from said cavity out said open top of said holster to break said core away from friction contact points between said core and said laminate forming said cavity.

4,340,438

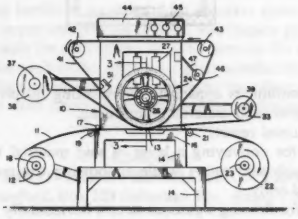
ROLL LEAF COATING METHOD

Jesse B. Davis, 196 S. Kilburn Rd., Garden City, N.Y. 11530

Division of Ser. No. 38,630, May 14, 1979, Pat. No. 4,288,275. This application May 22, 1981, Ser. No. 266,208

Int. Cl.³ B44C *1/14*

U.S. Cl. 156—234 **2 Claims**



1. Method for decorating a product surface by transferring a decorative roll leaf thereto from a foil which comprises a carrier, to which the decorative roll leaf has been bonded with a thermally meltable adhesive, which method includes the steps of;

contacting at least one of two pressure elements with a thermal belt, the latter defining a closed loop and being sequentially progressed into heat exchange engagement with a heat source and with one of said pressure elements and

compressing the foil against said product surface between said two pressure elements, said at least one heated pressure element concurrently heating the foil to a sufficient temperature to melt said adhesive whereby to permit separation of the decorative roll leaf from the carrier.

4,340,439

PROCESS OF USING A CUSHION FOR LAMINATING OPERATIONS

Harold C. Giesler, Westchester, Ohio, assignor to Formica Corporation, Wayne, N.J.

Continuation of Ser. No. 96,584, Nov. 21, 1979, Pat. No. 4,264,404. This application Feb. 10, 1981, Ser. No. 233,276

The portion of the term of this patent subsequent to Apr. 28, 1998, has been disclaimed.

Int. Cl.³ B32B *31/20*

U.S. Cl. 156—323 **1 Claim**

1. A process for producing a heat and pressure consolidated laminate which comprises heat and pressure consolidating a laminate assembly while employing, as a pressure cushion, at least two cellulosic sheets and at least one thermoplastic sheet having a glass transition point below 100° C. and a melting point of about 125° C. or more wherein the thermoplastic sheet or sheets have an individual thickness ranging from about 2 to 20 mils and a combined thickness greater than about 5 mils and wherein the individual thermoplastic sheets are interleaved between the cellulosic paper sheets.

4,340,440

COATING AND/OR ADHESIVE COMPOSITION AND METHOD FOR PREPARATION THEREOF

Challoner R. Chute, 918 Rugby Rd., Charlottesville, Va. 22903

Filed Sep. 22, 1977, Ser. No. 835,631

Int. Cl.³ C09J *3/14*; C08J *3/00*

U.S. Cl. 156—330.9 **15 Claims**

1. A composition suitable for forming coatings or for use as an adhesive consisting essentially of a suspension of finely divided polypyrrolidone in aqueous formic acid wherein said composition contains from 2% to 50% of polypyrrolidone and from 15% to 60% of formic acid, based on the weight of the composition.

11. A method for adhering a substrate to another substrate comprising interposing a layer of the composition of claim 1 between said substrates.

4,340,441

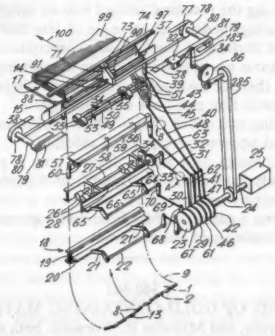
SLICING WEB MATERIAL

Peter J. Thwaites, Eltisley, and John N. Thornton, Abbotsley, both of England, assignors to DuFaylite Developments Limited, England

Continuation-in-part of Ser. No. 851,907, Nov. 16, 1977, Pat. No. 4,187,138. This application Dec. 10, 1979, Ser. No. 101,408

Int. Cl.³ B32B *31/00*

U.S. Cl. 156—512 **10 Claims**



1. Apparatus for cutting web material transversely to form sections of the web material which comprise a blade formed with a linear cutting edge, final advancing means for advancing the web material a section at a time adjacent to the linear cutting edge, final clamping means for clamping the advanced web material in advance of the edge with the sections projecting beyond the edge in turn, a linear guide parallel with the edge, a mounting movable to and fro along the linear guide, a blade carried by the mounting and formed with a circular peripheral cutting edge positioned to overlap the linear cutting edge, in web-material cutting association therewith, and a drive for moving the mounting to and fro along the guide in a continuous cyclic movement in which the mounting is moved in a first direction to a first reversal position, reversed in its motion, moved in the opposite direction to a second reversal position and again reversed in its motion for further movement in said first direction, said final advancing and said final clamping means being operable to advance a section of the web material when the mounting is in the region of its reversal positions and to clamp the web material when the mounting is moving to or fro over an intermediate part of its motion between the reversal positions, said blades cooperating to cut the web material transversely during each intermediate part of the cyclic movement of the mounting to cut off the then projecting section of the web material and leave the remainder of the web material with a cut edge at the positions of the linear cutting edge, said apparatus having, in addition to said final advancing

means and said final clamping means, primary advancing means and primary clamping means, said primary and final clamping means, and primary and final advancing means, being arranged to operate so that the primary advancing means advances the web material whilst the final clamping means is clamping it and the primary clamping means clamps the web material whilst the final advancing means is advancing it, the rate of the advancement by the primary advancing means being less than the rate of advancement by the final advancing means.

4,340,442

STARCH FIBRIDS USEFUL IN ENHANCING THE PHYSICAL PROPERTIES OF PAPER, AND PROCESS OF PREPARING SAME

John R. Hart, Savannah, Ga.; Stanley G. Juergens, Cincinnati, and William E. McCormack, Hamilton, both of Ohio, assignors to Champion International Corporation, Stamford, Conn.

Continuation of Ser. No. 958,187, Nov. 6, 1978, abandoned. This application Jun. 23, 1980, Ser. No. 161,664

Int. Cl.³ D21H *5/12*

U.S. Cl. 162—146 **13 Claims**

1. A process for the production of a paper product including water insoluble starch fibrids, which comprises:

(a) providing an aqueous, alkaline solution of a normally water-insoluble starch in finely divided form,

(b) suspending said finely divided starch solution in a gas and introducing the resulting aerosol into an agitated, aqueous precipitating medium at an angle of less than 90 degrees with the surface of said aqueous precipitating medium, said aqueous precipitating medium comprising a salt solution, to thereby produce starch fibrids characterized by having both film and fiber morphology,

(c) separating said starch fibrids which are insoluble in water from said aqueous precipitating medium,

(d) incorporating said starch fibrids into a papermaking wood pulp in an amount ranging from 1 percent to about 60 percent by weight, and

(e) preparing a paper product from said papermaking wood pulp including said starch fibrids.

4,340,443

ANALYSIS OF GOLD-CONTAINING MATERIALS

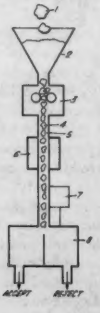
Colin G. Clayton, and Malcolm R. Wormald, both of Abingdon, England, assignors to United Kingdom Atomic Energy Authority, London, England

Filed Jun. 9, 1980, Ser. No. 157,300

Claims priority, application United Kingdom, Jun. 14, 1979, 7920667

Int. Cl.³ G21G *1/06*

U.S. Cl. 376—342 **8 Claims**



1. A method for determining the gold content of an auriferous material, comprising the operations of irradiating a body of the material with neutrons and determining the intensity of γ-rays having an energy of 279 keV arising from the reaction $^{197}Au\ (nn')\ ^{197m}Au \rightarrow 279\ keV$.

4,340,444

PLANT FOR RETORTING OIL PRODUCTS CONTAINED IN SHALES AND SANDS

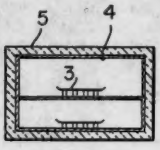
Carlo Roma, Rome, Italy, assignor to SQUARE S.A., Coira, Switzerland

Continuation-in-part of Ser. No. 105,470, Dec. 19, 1979, Pat. No. 4,253,938. This application Feb. 3, 1981, Ser. No. 230,987

Claims priority, application Italy, Sep. 21, 1979, 50323 A/79

Int. Cl.³ C10B *7/06, 53/06;* C10G *1/02*

U.S. Cl. 202—99 **3 Claims**



1. A continuous apparatus for retorting oil products from shale and/or sand material, comprising,

a horizontal retort,

means for conveying a layer of said material horizontally through said retort while supporting the material on a metal body,

means for flowing a gaseous stream horizontally through the retort countercurrently to said layer of material,

means for burning fuel at a location outside the retort to provide a supply of hot combusted gases, means for heating said countercurrently flowing gaseous stream by adding combusted gases thereto at one or more input zones in the horizontal retort,

said means for flowing a gaseous stream horizontally through the retort being operable to pass the heated gaseous stream to exchange heat convectively with the metal body and the material and the retort walls which face the material, whereby the metal body exchanges heat with the material by conduction and the retort walls exchange heat with the material by radiation, said material being heated to cause the vaporization of at least some of the oil products contained in said material,

means for removing vapors from said retort,

means for bringing a condensing fluid into heat exchanging relation to said vapors to condense said vapors, and means for removing dust therefrom to provide an oil-containing condensate and a stream of uncondensed vapors,

means for decanting said oil containing condensate,

means for cooling the condensing fluid before bringing it into heat exchanging relation to said vapor,

means for recycling at least a portion of said uncondensed vapors into the retort as said gaseous stream, and

means for removing carbon dioxide, hydrogen, light hydrocarbon fractions, nitrogen and steam as the stream of uncondensed vapors.

4,340,445

CAR FOR RECEIVING INCANDESCENT COKE

Valery N. Kucher, ulitsa § maya, 15, kv. 25; Alexandr Z. Popenko, ulitsa Prigorodnava, 68; Georgy R. Reiman, ulitsa Syrovtsa, 2/28, kv. 79; Mikhail I. Durachenko, ulitsa Lesopilnaya, 1/28, kv. 79, and Grigory D. Zhovtobrjukh, Komsomolsky prospekt, 20, kv. 40, all of Dneprodzerzhinsk, U.S.S.R.

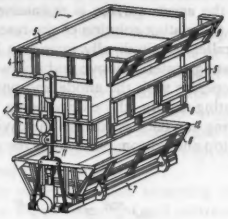
Filed Jan. 9, 1981, Ser. No. 223,683

Int. Cl.³ C10B *35/00*

U.S. Cl. 202—262 **5 Claims**

1. A car for receiving incandescent coke and transporting it

from a coking chamber to a quenching site, comprising a body removably mounted on an undercarriage and having a bunker and a wall structure which includes a wall girder disposed around the outer face thereof adjacent the junction to the bunker and carries a coke-receiving chute characterized in that the wall structure is detachably mounted on the bunker, and



wherein said bunker is provided with a bunker girder disposed around the upper end portion thereof, said bunker girder being in contact with the wall girder so as to provide for free linear expansion for each of the respective girders under the action of heat from the incandescent coke, whereby the effect of thermal strain in the wall structure and the bunker is eliminated.

4,340,446

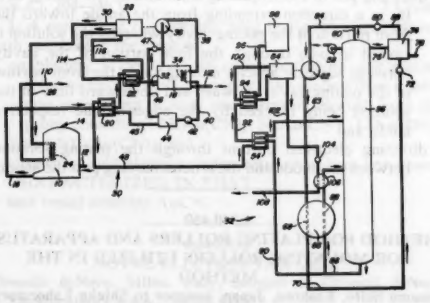
HEAT RECOVERY IN DISTILLATION PROCESS

Lynn A. Crawford, Box 225 Suburban Rte., Rapid City, S. Dak. 57701

Continuation of Ser. No. 71,687, Aug. 31, 1979, abandoned. This application Sep. 30, 1980, Ser. No. 192,316

Int. Cl.³ B01D *3/14*

U.S. Cl. 203—19 **14 Claims**



1. A process for the separation and recovery of ethanol from an aqueous fermentate consisting essentially of about 7% by weight ethanol, a minor portion of suspended solid matter, with the balance of the fermentate being water, the process comprising the following steps:

(a) pumping the fermentate to an evaporator within which separation and discharge of said solid matter from evaporator vapors of ethanol and water occurs;

(b) recompressing said evaporator vapors by a first compressor and condensing the compressed vapors;

(c) passing the condensate formed from the compressed vapors to a fractionation stage and fractionating said condensate under reduced pressure fractionation into vapors rich in ethanol and liquid bottom product rich in water;

(d) withdrawing the vapors and withdrawing the bottom product;

(e) recompressing said vapors rich in ethanol in a second compressor and condensing the vapors to form a liquid product rich in ethanol;

(f) withdrawing said liquid product containing at least about 97 volume percent ethanol;

(g) driving each of said first and second compressors by an engine, said engine producing recoverable waste heat; and

(h) using at least a portion of said recoverable waste heat for heating said fermentate, said bottom product, or said discharged solid matter.

4,340,447

PROCESS FOR THE RECOVERY OF PURE ACETONE FROM CUMENE HYDROPEROXIDE CLEAVAGE REACTION PRODUCT

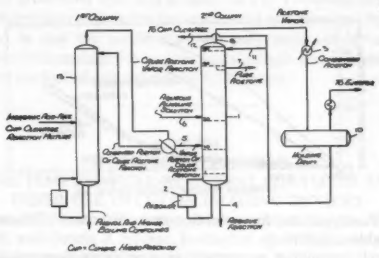
Robert G. Laverick, Sandy, England, and James M. Scotland, Stirlingshire, Scotland, assignors to BP Chemicals Limited, London, England

Filed May 27, 1981, Ser. No. 267,603

Claims priority, application United Kingdom, May 27, 1980, 8017367

Int. Cl.³ B01D *3/34;* **C07C** *49/08*

U.S. Cl. 203—36 **10 Claims**



1. A process for the recovery of pure acetone from a crude acetone fraction removed overhead as a vapour from a first column separating phenol and higher-boiling compounds as a bottom fraction from the cumene hydroperoxide cleavage reaction product which process comprises partially condensing the crude acetone fraction, returning the condensed portion of the crude acetone fraction to the first column as reflux, feeding the remaining portion of the crude acetone fraction whilst still in the vapour phase to an intermediate point in a second distillation column to which there is also continuously fed at a point above the acetone feedpoint a dilute aqueous solution of an alkaline material, removing from the base of the second column a residue fraction comprising compounds boiling above acetone, removing from a point in the second column intermediate between the alkaline material feed point and the top of the column as a liquid sidedraw fraction pure acetone having a permanganate time greater than 4 hours, and removing from the top of the second column as a vapour fraction acetone having a permanganate time less than that of the sidedraw fraction, condensing the acetone vapour fraction and returning to the second column at a point above the liquid acetone sidedraw removal point a portion of the condensate as reflux.

4,340,448

POTENTIOMETRIC DETECTION OF HYDROGEN PEROXIDE AND APPARATUS THEREFOR

Julian G. Schiller, Pittsburgh; Lemuel B. Wingard, Jr., Monroeville, both of Pa., and Chung-Chiun Liu, Cleveland, Ohio, assignors to University of Pittsburgh, Pittsburgh, Pa.

Filed Aug. 28, 1978, Ser. No. 937,365

Int. Cl.³ C12Q *1/26, 1/30;* **G01N** *27/46*

U.S. Cl. 204—1 T **13 Claims**

1. A method for potentiometric detection of hydrogen peroxide comprising

providing an electrolytic cell having a reference electrode

and a working electrode composed at least in part of a hydrogen peroxide sensitive material,

immobilizing at least one oxidase enzyme on said working electrode,

said immobilized enzyme including catalase,

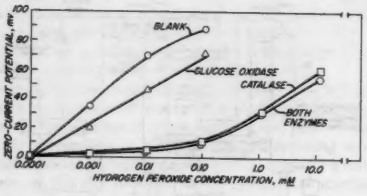
introducing a hydrogen peroxide releasing substance into said cell,

releasing said hydrogen peroxide by effecting contact between said enzyme and said hydrogen peroxide releasing substance,

developing in said cell through interaction between said hydrogen peroxide and said working electrode an electrical potential which is a function of the concentration of said hydrogen peroxide in said electrolytic cell,

maintaining the pH of said cell in the range of about 5 to 9, and

measuring said electrical potential of said cell whereby said working electrode will serve as a support for said oxidase enzyme and also as a hydrogen peroxide sensitive electrode to provide an electrical potential signal which is a function of the concentration of said hydrogen peroxide.



9. An apparatus for potentiometric detection of hydrogen peroxide comprising

a cell containing an electrolyte, a working electrode and a reference electrode,

an electrometer operatively associated with said working electrode and said reference electrode,

said working electrode composed of a material which creates an electrical potential when it interacts with hydrogen peroxide,

at least one oxidase enzyme immobilized on said working electrode,

said enzyme includes glucose oxidase and catalase,

whereby introduction of a hydrogen peroxide containing substance into said cell will result in said enzyme releasing hydrogen peroxide from said hydrogen peroxide releasing substance with the hydrogen peroxide interacting with said working electrode and said working electrode functioning as a support for said oxidase enzyme and to generate an electrical potential which is a function of the concentration of said hydrogen peroxide.

4,340,449

METHOD FOR SELECTIVELY ELECTROPLATING PORTIONS OF ARTICLES

Venkataraman Srinivasan, Attleboro; Stephen Cassidy, Canton, and Charles Grassie, Attleboro, all of Mass., assignors to Texas Instruments Incorporated, Dallas, Tex.

Continuation of Ser. No. 840,698, Oct. 11, 1977, abandoned.
This application Oct. 16, 1980, Ser. No. 197,445
Int. Cl.³ C25D *5/02, 5/08*
U.S. Cl. 204—15 **1 Claim**

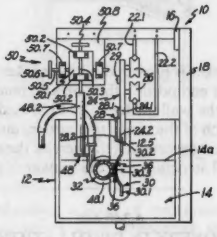
1. A method of rapidly electroplating selected portions of a plurality of metallic articles having a selected front surface configuration to be plated to enhance the uniformity of plating on said surfaces for permitting such selective plating in a commercially effective manner using lesser tolerances, the method comprising the steps of

providing a reservoir of an electroplating solution with a top surface level of the solution in the reservoir defined,

moving the selected portions of the articles through the reservoir beneath the top surface thereof in a straight longitudinal direction so that the selected front configuration of the articles define a plane area of selected length as the articles move through the reservoir,

disposing an anode with a longitudinally extending surface essentially conforming to the plane area in the reservoir beneath the top surface of the reservoir closely adjacent to but spaced from said plane so that the space between the plane and the anode surface is maintained continuously filled with the plating solution of the reservoir,

disposing parallel, longitudinally extending lands of electrically insulating material above and below the anode surface to cooperate with the anode and with said plane to form a plating cavity, the cavity being defined by the anode serving as a back portion of the cavity, by the lands serving as top and bottom portions of the cavity, and by a



front portion defined by the selected front surface configurations of the articles moving past the anode the lands each forming an edge extending longitudinally along the plating cavity.

biasing the articles to slide against the edges formed by the lands as the articles move through the reservoir,

directing jets of electroplating solution into the plating cavity in a direction extending from the anode toward the front portion of the plating cavity whereby the solution is caused to pass through the first portion of the cavity between adjacent articles moving along the front portion of the plating cavity, upward and downward flow of the solution being blocked by the edges of the respective lands, and

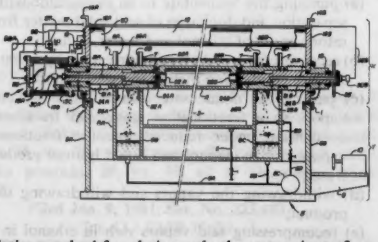
directing electrical current through the plating solution between the anode and the articles moving past the anode.

4,340,450

METHOD FOR PLATING ROLLERS AND APPARATUS FOR MOUNTING ROLLERS UTILIZED IN THE METHOD

Susumu Saito, Kashiwa, Japan, assignor to Shinku Laboratory Co., Ltd., Chiba, Japan

Filed Jul. 9, 1980, Ser. No. 167,108
Int. Cl.³ C25D *5/34, 7/04, 17/06*
U.S. Cl. 204—25 **2 Claims**



1. A plating method for plating only the outer circumferential surface of a hollow roller utilizing a pretreatment device,

an etching device, an after-treatment device and an electric metal plating device, said method comprising the steps of:

mounting the roller in a cassette wherein the cassette comprises:

a pair of lifting frames;

a pair of rotary spindles facing each other and rotatably coupled to the lifting frames such that at least one of the spindles are axially movable;

a pair of electrically conductive members provided one on each of said pair of spindles capable of supporting said roller by engaging with hollow ends of the rollers; and

a pair of leakage-proof prevention caps provided one on each end of the pair of spindles for engaging with said hollow roller and for preventing liquid from leaking to the inside of said roller when the caps engage with the hollow end of the roller;

conveying the cassette to and mounting the cassette on successively, a tank of each of said pretreatment, etching, after-treatment and electric metal plating devices such that at least a part of the roller is immersed in a solution in the tank;

rotating the roller during pretreatment, etching, after-treatment and electric metal plating;

dismounting the cassette from the tank of said electric metal plating device;

conveying the cassette to a roller removal location; and

removing the roller from the cassette.

4,340,451

METHOD OF REPLENISHING GOLD/IN PLATING BATHS

Yutaka Okinaka, Madison, and Catherine Wolowodiuk, Chatham Township, Morris County, both of N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Dec. 17, 1979, Ser. No. 104,181

Int. Cl.³ C25D *3/48*

U.S. Cl. 204—46 G **7 Claims**

1. A method of replenishing gold in a gold electroplating bath comprising the steps of:

establishing a free cyanide concentration in said plating solution having a pH of at least 3 by plating from a solution comprising at least one member selected from the group consisting of $KAu(CN)_2$, $NaAu(CN)_2$, $LiAu(CN)_2$, and $NH_4Au(CN)_2$; and

circulating said plating solution through at least one vessel CHARACTERIZED IN THAT

said vessel contains AuCN.

4,340,452

NOVEL ELECTROLYSIS CELL

Oronzio deNora, Milan, Italy, assignor to Oronzio deNora Elettrochimici S.p.A., Milan, Italy

Continuation-in-part of Ser. No. 102,629, Dec. 11, 1979. This application May 19, 1980, Ser. No. 151,346

Claims priority, application Italy, Jan. 28, 1980, 19592 A/80

Int. Cl.³ C23B *1/34, 1/02, 9/00*

U.S. Cl. 204—129 **63 Claims**

1. A method of generating halogen by electrolysis of halide electrolyte in an electrolytic cell having an anode and a cathode separated by a semi-permeable membrane characterized in that both electrodes are open to gas and electrolyte flow and have a surface in direct contact at a plurality of points with the surface of the membrane, wherein the density of the points of contact is at least 30 points/cm² and the ratio between the total contact area and the projected area is not more than 75% and a substantially uniform resilient pressure is maintained over the points of contact, the electrode surfaces in contact at a plurality of points with the surface membrane comprise thin, electrically conductive screens slideable with respect to the membrane and having a mesh number of at least 10.

4,340,453

U.V.-CURABLE RESIN WITH AMINE ACCELERATOR

Arie Noomem, Voorhout, Netherlands, assignor to Akzo N.V., Arnhem, Netherlands

Filed Apr. 9, 1980, Ser. No. 138,684

Claims priority, application Netherlands, Apr. 10, 1979, 7902797

Int. Cl.³ C08F *2/50;* C08K *5/34*

U.S. Cl. 204—159.15 **13 Claims**

1. A coating composition which is curable under the influence of ultraviolet light and is based on a U.V.-curable binder, a photoinitiator and a nitrogen-containing accelerator, characterized in that the accelerator is a polycyclic condensation product of formaldehyde and/or acetaldehyde and an aliphatic and/or cycloaliphatic diprimary 1,2-diamine.

4,340,454

PHOTOCROSSLINKABLE, HIGH-TEMPERATURE-RESISTANT POLYMERS AND THEIR USE IN COLOR IMAGING DEVICES

Thomas W. Martin, Rochester; Mohammad A. Sandhu, Pittsford, and Dennis J. Savage, Rochester, all of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Division of Ser. No. 75,621, Sep. 14, 1979, Pat. No. 4,267,961, which is a division of Ser. No. 940,057, Sep. 6, 1978, Pat. No. 4,190,446. This application Sep. 10, 1980, Ser. No. 185,659

Int. Cl.³ C08F *8/00;* C08G *18/00, 63/00, 69/00*

U.S. Cl. 204—159.16 **6 Claims**

1. A photocrosslinkable, organic solvent-soluble polymer having a Tg greater than 200° C., wherein said polymer contains sufficient radiation-sensitive crosslinkable units to render said polymer insoluble in organic solvents on exposure to radiation to which said crosslinkable units are sensitive.

4,340,455

POLYADDUCT/POLYCONDENSATE CONTAINING BASIC NITROGEN GROUPS, AND ITS USE

Fritz E. Kempter, Mannheim, and Eberhard Schupp, Schwetzingen, both of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Fed. Rep. of Germany

Filed Jul. 9, 1981, Ser. No. 281,920

Claims priority, application Fed. Rep. of Germany, Jul. 16, 1980, 3026873

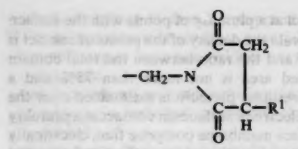
Int. Cl.³ C08G *59/50, 59/54;* C08L *63/10*

U.S. Cl. 204—181 C **7 Claims**

1. A polyadduct/polycondensate which is water-dilutable when protonated with an acid and which contains basic nitrogen groups, the product being obtained by polyaddition reaction of

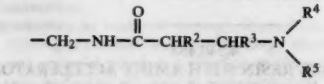
(A) from 10 to 90% by weight of a Mannich base obtained from (a) monophenols and/or polyphenols, (b) one or more secondary amines which contain one or more hydroxyalkyl groups (b_1), or a mixture of such a secondary amine with another secondary amine (b_2) and (c) formaldehyde or a formaldehyde donor, with

(B) from 10 to 90% by weight of one or more epoxy resins, wherein the polyadduct/polycondensate of (A) with (B) contains groups, bonded to aromatic rings, of the formula (I)



(I)

with or without groups of the general formula II



(II)

where R^1 is a polydienyl radical, R^2 and R^3 are identical or different and each is hydrogen or methyl and R^4 and R^5 are identical or different and each alkyl of 1 to 9 carbon atoms or hydroxyalkyl or alkoxyalkyl of 2 to 10 carbon atoms, or which are linked to one another to form a 5-membered or 6-membered ring.

4,340,456

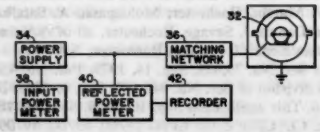
METHOD FOR DETECTING THE END POINT OF A PLASMA ETCHING REACTION

Frederick J. Robinson, Scottsdale, and Clarence J. Tracy, Tempe, both of Ariz., assignors to Motorola, Inc., Schaumburg, Ill.

Division of Ser. No. 912,615, Jun. 5, 1978, Pat. No. 4,201,579. This application Nov. 2, 1979, Ser. No. 90,767

Int. Cl.³ H01L *21/306*

U.S. Cl. 204—192 E **6 Claims**



1. An improved method for detecting the end point of a plasma etching reaction where material is removed from a body and wherein radio frequency power is applied to a plasma reactor to form a plasma therein and a portion of said power is reflected from said plasma reactor, the improvement which comprises monitoring changes in said power reflected from said plasma reactor and terminating said plasma etching reaction in response to said changes.

4,340,457

ION SELECTIVE ELECTRODES

John A. R. Kater, 2037 W. San Lorenzo, Santa Ana, Calif. 92704

Filed Jan. 28, 1980, Ser. No. 116,297

Int. Cl.³ G01N *27/30*

U.S. Cl. 204—195 R **15 Claims**

1. An ion selective electrode comprising a metallic conductor, an overlayer of at least one of silver black or platinum black overlying the conductor, a layer of non-liquid hydrophilic material overlying and in intimate contact with said overlayer and a material selective to a specific ion and overlying and in intimate contact with the hydrophilic material.

14. In combination, an ion selective electrode and a reference electrode, each comprising reference electrode, each comprising a half-cell formed of like material, the half-cell of each electrode comprising at least one of silver black and platinum black and the reference electrode being overcoated with a layer of protein material; said electrodes, except for portions of their electrical conductors, being disposed in a common sealed container containing reference solution.

4,340,458

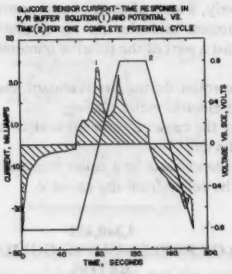
GLUCOSE SENSOR

Harry Lerner, Lexington; Jose D. Giner, Brookline, and John S. Soeldner, Newton, all of Mass., assignors to Joslin Diabetes Center, Inc., Boston, Mass.

Filed Jun. 2, 1980, Ser. No. 155,198

Int. Cl.³ G01N *27/46, 27/50*

U.S. Cl. 204—195 R **16 Claims**


GLUCOSE SENSOR CURRENT- TIME RESPONSE IN K/R BUFFER SOLUTION(1) AND POTENTIAL VS. TIME(2)FOR ONE COMPLETE POTENTIAL CYCLE
CURRENT, MILLIAMPS
VOLTAGE VS. SCE, VOLTS
TIME, SECONDS

1. Apparatus implantable in a living body for sensing the concentration of glucose in biological fluids, comprising

an electrode for catalytically promoting electrochemical oxidation of glucose,

a voltage source,

means for applying a varying voltage from said source to said electrode to cause a current flow therethrough,

means for integrating current at the electrode with respect to time, and

control means automatically operative without manual intervention to cause said voltage to sweep over a range in a first direction from a first limit to a second limit and in the reverse direction back toward said first limit, and to selectively activate said means for integrating during a period including at least a portion of said voltage sweep in both directions selected to produce a total charge sensitive to glucose concentration and relatively insensitive to other components in the fluid.

4,340,459

ELECTROLYTIC CELL WITH OXYGEN-DEPOLARIZED CATHODES

James A. McIntyre; Robert F. Phillips, both of Midland, and Joseph D. Lefevre, Bay City, all of Mich., assignors to The Dow Chemical Company, Midland, Mich.

Continuation-in-part of Ser. No. 939,588, Sep. 5, 1978, abandoned. This application Dec. 11, 1979, Ser. No. 102,481

Int. Cl.³ C25B *9/00, 11/03, 11/08*

U.S. Cl. 204—258 **20 Claims**

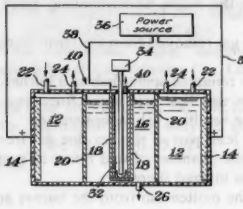
1. An electrolytic cell comprising an anode in an anode compartment, spaced apart from a cathode in a cathode compartment by an ion exchange membrane or a diaphragm, wherein the cathode comprises:

a first electrically conductive porous layer having a plurality of interconnecting passageways therethrough with diameters of from about 7 to about 12 microns; and

a second electrically conductive porous layer having a plurality of interconnecting passageways therethrough with diameters of from about 0.1 to about 3 microns; the layers being joined into a wall structure in a manner so that at

least a portion of the passageways of the first layer interconnect with at least a portion of the passageways of the second layer,

said wall being in the shape of a pocket, wherein at least a portion of an inner surface of the pocket is a surface of the



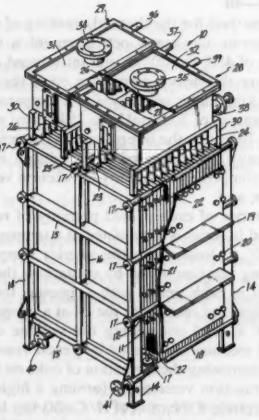
first layer and at least a portion of an outer surface of the pocket is a surface of the second layer.

4,340,460

INTERNAL DOWNCOMER FOR ELECTROLYTIC RECIRCULATION

Morton S. Kircher, Clearwater, Fla., assignor to Olin Corporation, New Haven, Conn.

Filed Nov. 24, 1980, Ser. No. 209,634
Int. Cl.³ C25B *9/00, 11/03, 15/08*
U.S. Cl. 204—258 **28 Claims**



1. In a monopolar filter press membrane electrolytic cell for the production of halogen gas having:

(a) elongate frame means supporting the cell;

(b) a plurality of elongate planar cathodes of predetermined height and length supported by the frame means;

(c) a plurality of elongate planar anodes of predetermined height and length generally parallel to the cathodes, each anode being sandwiched between a pair of cathodes;

(d) electrolyte circulatable through the cell at a predetermined rate;

(e) a catholyte gas-liquid disengager supported by the frame and connected to each cathode to permit gas to separate from the electrolyte in the cathodes;

(f) an anolyte gas-liquid disengager supported by the frame and connected to each anode to permit gas to separate from the electrolyte in the anodes;

(g) fluid flow conduit means interconnecting the cathodes and the catholyte gas-liquid disengager;

(h) a plurality of fluid flow conduit means interconnecting the anolyte gas-liquid disengager and each anode wherein at least one of the conduit means has a first portion outside of each anode extending into the anolyte disengager and a second portion within each anode, the first portion at least partially of generally circular cross-section and the second portion having in cross-section generally elongate parallel opposing first and second sides interconnected on opposing ends by arcuate members and extending down into each anode a predetermined distance less than the predetermined height of the anode;

(i) conducting means connecting to the anodes and the cathodes for conducting electrical current thereto, the conducting means further comprising a plurality of conductor rods extending into at least each anode and having welded thereto said at least one of the conduit means to provide structural stiffness to the cell; and

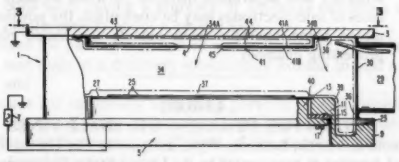
(j) electric power means connected to the cell to drive the electrolytic reactions therein.

4,340,461

MODIFIED RIE CHAMBER FOR UNIFORM SILICON ETCHING

Charles J. Hendricks; William W. Hicks, both of Wappingers Falls, and John H. Keller, Newburgh, all of N.Y., assignors to International Business Machines Corp., Armonk, N.Y.

Filed Sep. 10, 1980, Ser. No. 185,831
Int. Cl.³ C23C *15/00;* **C23F** *1/00*
U.S. Cl. 204—298 **9 Claims**



1. In a reactive ion etching system including anode and target cathode means adapted to be biased to create an ionized plasma within a reaction chamber having ion species and neutral etching species, the improvement comprising a plasma enhancing baffle plate electrically coupled to said anode and arranged to form a constricted chamber region between said anode and baffle plate with said baffle plate being at least as close to said anode than as to said cathode and with said constricted chamber region being open to said reaction chamber through aperture means in said baffle plate to permit said plasma to be generated within said constricted chamber region such that the total surface area of said anode is increased thereby acting to increase the creation and distribution of said neutral species.

4,340,462

ADJUSTABLE ELECTRODE PLASMA PROCESSING CHAMBER

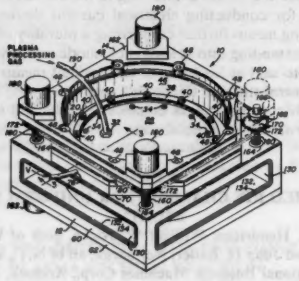
George R. Koch, Los Altos, Calif., assignor to Lam Research Corporation, Santa Clara, Calif.

Filed Feb. 13, 1981, Ser. No. 234,346
Int. Cl.³ C23C *15/00;* **C23F** *1/02*
U.S. Cl. 204—298 **12 Claims**

1. An adjustable electrode plasma processing chamber comprising:

a sealable assembly including an electrode housing having a first electrode formed at one terminal end thereof and a reaction chamber body having formed therein a second electrode and an aperture for receiving and sealing about said first electrode terminal end of said electrode housing, said electrodes being electrically insulated from one another and positioned adjacent to one another to establish a plasma reaction region between adjacent surfaces thereof, said electrode housing and said reaction chamber body being moveable with respect to each other for changing said separation distance of said adjacent surfaces of sai

electrodes, the assembly being adapted to receive a workpiece within said plasma reaction region, the assembly further including a workpiece transfer aperture to allow a workpiece to enter or exit the plasma reaction region, a processing gas inlet aperture for infusing plasma processing gases into the plasma reaction region and an exhaust aperture for removing gases from the plasma reaction region; and



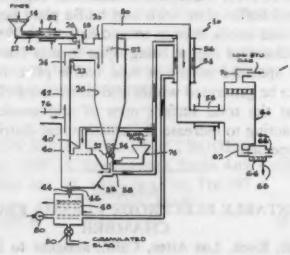
an electrode positioning means for moving said electrode housing with respect to said reaction chamber body whereby said separation distance between adjacent surfaces of said electrodes may be controlled, the positioning means being operable from outside the sealed plasma processing chamber.

4,340,463

SYSTEM FOR UTILIZING OIL SHALE FINES

Arnold E. Harak, Laramie, Wyo., assignor to The United States of America as represented by the United States Department of Energy, Washington, D.C.

Filed Mar. 13, 1981, Ser. No. 243,307
Int. Cl.³ C10G *1/00, 1/02*
U.S. Cl. 208—11 R **11 Claims**



1. Apparatus for utilizing fines of carbonaceous material, of a size on the order of magnitude of one-half inch and less, comprising:

a cyclone retort chamber having an inlet for receiving said fines and hot gases, and having means for circulating fines around said chamber whereby said fines are maintained in a fluidized state with hot gases in said chamber, a gas outlet for removing at least gas from said chamber, and a spent fine outlet for removing spent fine material from said chamber; and

a burner having an inlet coupled to said spent fine outlet of said retort, for burning said spent fine material to generate substantially oxygen-free gaseous combustion products, said burner having an outlet connected to said inlet of said retort for supplying hot gas thereto which is formed of substantially oxygen-free combustion products.

7. A process for utilizing and disposing of carbonaceous fines, comprising:

pyrolyzing said fines with hot substantially nonoxidizing gases in a retort having a cyclone chamber, by maintaining said fines circulating around the chamber in a fluidized state with hot substantially non-oxidizing gas, removing gas from the retort, and removing spent fines from the retort;

cooling the gas removed from the retort to recover oil therefrom;

burning the removed spent fines in a burner to generate hot flue gases and heat said spent fines to a temperature at which the resulting ash is molten; and

carrying at least part of the hot flue gas from the burner to the cyclone chamber of said retort to supply hot nonoxidizing gas utilized therein.

removing the molten ash from the burner and quenching it to form a granular waste.

4,340,464

METHOD FOR THERMAL CRACKING OF HEAVY PETROLEUM OIL

Takaaki Aiba; Hisatsugu Kaji; Tomizo Endo, and Takao Ishihara, all of Ichihara, Japan, assignors to Kureha Kagaku Kogyo Kabushiki Kaisha, Tokyo; Sumitomo Metal Industries, Ltd., Osaka and Sumikin Coke Co., Ltd., Wakayama, all of, Japan

Continuation-in-part of Ser. No. 888,393, Mar. 20, 1978, abandoned. This application Jan. 17, 1980, Ser. No. 112,920
Int. Cl.³ C10C *3/00, 3/04*
U.S. Cl. 208—40 **3 Claims**

1. In the method for the thermal cracking of a heavy petroleum oil wherein the heavy petroleum oil is preheated to a temperature of 450° to 520° C. and introduced into a reaction system, where the heavy petroleum oil is then subjected to thermal cracking under conditions of a temperature of 350° to 450° C., a pressure of 300 mmHg to 15 kg/cm^2 and a residence time of 1 to 10 hours, the improvement wherein

(a) the heavy petroleum oil is introduced into a reaction system comprising a plurality of reaction vessels arranged in series; and

(b) the interior of each of said plurality of reaction vessels arranged in series is maintained at a temperature which is 5° to 50° C. lower than the interior temperature of the preceding reaction vessel by contacting the heavy petroleum oil in each vessel with a gaseous thermal medium which does not react with the oil at a temperature of 400° to 2000° C. and controlling the volume of the gaseous thermal medium introduced into each vessel,

thereby suppressing the formation of coke on the inner walls of said reaction vessels and forming a high aromatic and uniform pitch of the ratio of H/C of 0.4 to 1.1, of a content of n-heptane-insoluble and quinoline-soluble fraction of more than 55% and of a softening point of about 170° C.

4,340,465

DUAL COMPONENT CRYSTALLINE SILICATE CRACKING CATALYST

Stephen J. Miller, San Francisco, and Keith C. Bishop, III, San Rafael, both of Calif., assignors to Chevron Research Company, San Francisco, Calif.

Filed Sep. 29, 1980, Ser. No. 191,575
Int. Cl.³ C10G *11/05*
U.S. Cl. 208—120 **20 Claims**

1. A process for catalytically cracking a hydrocarbonaceous feedstock comprising the step of contacting the feedstock in a reaction zone under catalytic cracking conditions in the absence of added hydrogen with a catalyst composition comprising a crystalline silicate component having a mole ratio of oxides of SiO_2:Al_2O_3 greater than about 500 and having an internal pore structure which will allow the entry of normal aliphatic and slightly branched aliphatic compounds, yet sub-

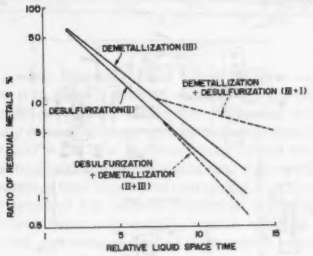
stantially exclude all compounds having a molecular dimension equal to or substantially greater than a quaternary carbon atom and a large pore size crystalline aluminosilicate cracking component.

4,340,466

PROCESS FOR HYDROTREATING HEAVY OILS CONTAINING METALS

Masayoshi Inooka, Yokohama, Japan, assignor to Chiyoda Chemical Engineering & Construction Co., Ltd., Yokohama, Japan

Filed May 15, 1980, Ser. No. 150,132
Claims priority, application Japan, May 22, 1979, 54-62242
Int. Cl.³ C10G *23/02*
U.S. Cl. 208—210 **11 Claims**



1. In a process for hydrotreating a heavy oil containing soluble metals in two steps at a temperature of 320° to 470° C. under a hydrogen pressure of 30 to 350 kg/cm^2, the improvement which comprises using a first-step catalyst having a desulfurization selectivity γ_1 in the first step and a second-step catalyst having a desulfurization selectivity γ_2, which is lower than γ_1, in the second step, each of the desulfurization selectivities γ_1 and γ_2 being defined by the following equation:

$$\gamma(\text{i.e., } \gamma_1 \text{ or } \gamma_2)=(\ln So/S)/(\ln Mo/M)$$

wherein So and S represent the sulfur contents of the starting heavy oil and the treated oil respectively, and Mo and M represent the metal contents of the starting oil and the treated oil respectively, and maintaining the partial pressure of hydrogen in the first step 10 to 50 kg/cm^2 lower than that in the second step.

4,340,467

FLOTATION OF COAL WITH LATEX EMULSIONS OF HYDROCARBON ANIMAL OR VEGETABLE BASED OIL

Samuel S. Wang, Cheshire, and Michael J. Scanlon, Stratford, both of Conn., assignors to American Cyanamid Company, Stamford, Conn.

Filed Mar. 20, 1980, Ser. No. 132,248
Int. Cl.³ B03D *1/02*
U.S. Cl. 209—166 **6 Claims**

1. In a froth flotation process comprising adding to an aqueous phase containing a coal and its associated ash (1) a frother, (2) a collector, (3) a frothing gas and optionally (4) a modifier and thereafter recovering the coal that is froth floated, the improvement which comprises:

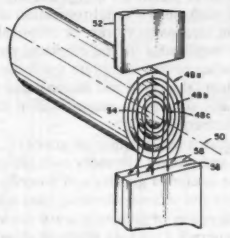
adding a latex emulsion as the collector, said latex emulsion consisting essentially of from about 10% to 70% by weight of a hydrocarbon, animal or vegetable based oil, from about 1.0% to 18% by weight of a hydrophobic water-in-oil emulsifier having an HLB value of not greater than 5.0, from about 0.1% to 7% by weight of a hydrophilic surfactant having an HLB value of not less than 9.0 and the remainder constituting water.

4,340,468

METHOD AND APPARATUS FOR SEPARATING MATERIALS MAGNETICALLY

Eugene C. Hise, Jr., Oak Ridge, and Allen S. Holman, Knoxville, both of Tenn., assignors to The United States of America as represented by the United States Department of Energy, Washington, D.C.

Filed Nov. 6, 1980, Ser. No. 204,450
Int. Cl.³ B03C *1/26*
U.S. Cl. 209—214 **2 Claims**



1. Apparatus for separating materials having different magnetic properties, comprising:

a plurality of concentrically disposed, current-conducting coils each having a plurality of windings extending circumferentially about a central axis;

means for passing a stream of said materials across ends of said coils in a direction substantially normal to said axis; and

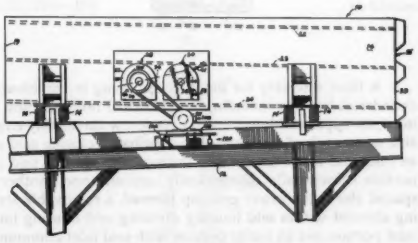
means for separately collecting portions of said materials that travel along different paths while crossing the ends of said coils under the influence of the magnetic field produced by said coils.

4,340,469

VIBRATORY SCREEN APPARATUS

Fred C. Archer, Spokane, Wash., assignor to Spokane Crusher Mfg. Co., Spokane, Wash.

Filed Jan. 23, 1981, Ser. No. 227,759
Int. Cl.³ B07B *1/28*
U.S. Cl. 209—315 **18 Claims**



1. A self-synchronizing multi-vibratory screen apparatus for classifying loose solid material, comprising:

a screen frame resiliently mounted on a base in which the screen frame supports a plurality of vertically spaced substantially horizontal classifying screens extending between side walls from a feed end to a discharge end with the screens defining an uppermost screen and lowermost screen;

a first unbalanced weight vibrator means mounted on the frame with a first shaft extending horizontally between the side walls interconnecting eccentric weights with the shaft journalled to rotate about a first vibratory axis verti-

cally spaced intermediate the uppermost and lowermost screens to generate a first gyrational centrifugal force of a desired first magnitude about the first vibratory axis when the shaft is rotated at a desired speed;

a second unbalanced weight vibratory means mounted on the frame with a shaft extending horizontally between the side walls interconnecting vibratory axis vertically spaced intermediate the uppermost and lowermost screens and parallel with the first vibratory axis to generate a second gyrational centrifugal force of a desired second magnitude about the second vibratory axis when the second shaft is rotated at the desired speed;

individual motor drive means for independently rotating the corresponding shafts in self synchronization at the desired speed cause the screens to vibrate in elliptical paths with the maximum amplitudes of the elliptical paths inclined toward the discharge end to agitate the loose solid material on the horizontal screens and and to cause the material on the horizontal screens to migrate from the feed end towards the discharged end;

wherein the apparatus has a center of gravity;

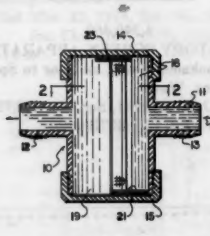
wherein the first and second vibratory axes are spaced vertically below the center of gravity and wherein a midpoint between the first and second vibratory axes is horizontally spaced from the center of gravity toward the infeed end of the frame to generate a rocking moment about the center of gravity to cause the maximum amplitude of the elliptical paths of the screen to progressively decrease from the infeed end to the discharged end.

4,340,470

LIQUID FILTER

John D. Van Mol, Box 13, Group 20, R.R. #1, Winnipeg, Manitoba, Canada (R3C 2E4)

Filed Jan. 5, 1981, Ser. No. 222,360
Claims priority, application Canada, May 2, 1980, 351191
Int. Cl.³ B01D *35/28*
U.S. Cl. 210—94 **2 Claims**



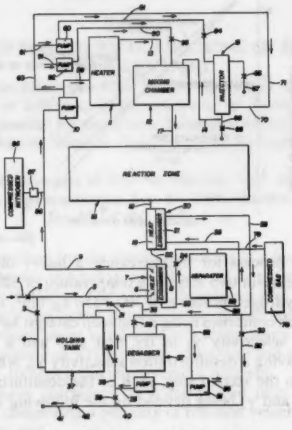
1. A filter assembly for liquids comprising in combination a cylindrical housing including a cylindrical body portion having open upper and lower ends, caps screw threadably engageable upon each of said ends, for detachably closing said ends, an inlet and an outlet formed through the wall of said body portion substantially diametrically opposite one another and spaced above the lower end cap thereof, a removable screening element within said housing dividing said housing into an inlet portion and an outlet portion with said inlet communicating with said inlet portion and said outlet communicating with said outlet portion, said screening element being situated vertically within said housing and extending between said end caps, said screening element including a vertical portion and a base portion situated at right angles to said vertical portion and extending from the lower end of said vertical portion, said base portion covering substantially entirely the portion of the lower end cap within said inlet portion of said housing to collect and retain sediment thereon, means within said housing extending from the wall of said body portion and engageable by said screening element, for positioning said screening element within said housing, at an inclined angle less than 90° from the direction of flow of said liquid through said housing, said means for positioning said screening element including lug means on the inner wall of said housing engageable by the vertical side edges of said screening element to locate said element in the desired angular relationship relative to the direction of flow of liquid through said housing.

4,340,471

SYSTEM AND APPARATUS FOR THE CONTINUOUS DESTRUCTION AND REMOVAL OF POLYCHLORINATED BIPHENYLS FROM FLUIDS

Otis D. Jordan, North Canton, Ohio, assignor to Sun-Ohio Inc., Canton, Ohio

Continuation-in-part of Ser. No. 171,388, Jul. 23, 1980, abandoned. This application Oct. 21, 1980, Ser. No. 199,261
Int. Cl.³ B01D *19/00*
U.S. Cl. 210—101 **26 Claims**



1. A system for the continuous destruction of polychlorinated biphenyl present in a fluid including:

(a) a mixing chamber;

(b) agitating means in the mixing chamber for thoroughly agitating and mixing the contents of said chamber;

(c) pump means for feeding a predetermined quantity of the fluid containing polychlorinated biphenyl into the mixing chamber;

(d) heating means for raising the temperature of the fluid to a predetermined temperature;

(e) injector means for feeding a predetermined quantity of a reagent such as an elemental sodium or potassium dispersion into the mixing chamber, said injector means operatively communicating with the pump means whereby the amount of fluid being fed by said pump means into the mixing chamber controls the quantity of reagent being fed into the mixing chamber by the injector means;

(f) reaction chamber means operatively connected to the mixing chamber for receiving the fluid containing the polychlorinated biphenyl and reagent from said mixing chamber, said reaction chamber having an elongated configuration with a linear length in the direction of flow greater than the square root of the cross-sectional area of the chamber across the direction of flow;

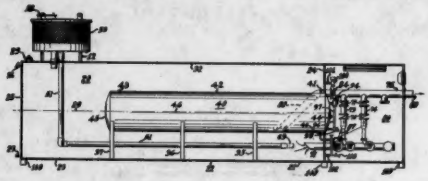
(g) separator means for separating the products of reaction between the polychlorinated biphenyl and reagent from the fluid leaving the reaction chamber means; and

(h) degassing means for removing certain gases contained in the fluid and products of reaction leaving the separator means.

4,340,472
WATER TREATMENT PLANT

James A. Mixon, Jacksonville, Fla., assignor to American Enviro-Port, Inc., Jacksonville, Fla.

Continuation of Ser. No. 107,189, Dec. 26, 1979, abandoned, which is a continuation of Ser. No. 901,562, May 1, 1978, abandoned. This application May 11, 1981, Ser. No. 262,310
Int. Cl.³ C02F *1/74, 3/02*
U.S. Cl. 210—104 21 Claims



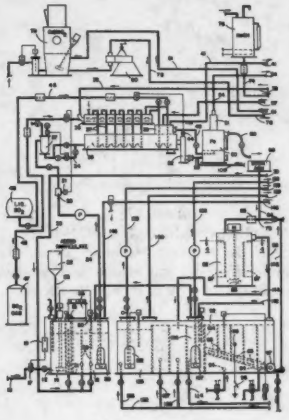
1. In a water treatment plant which receives untreated water, treats it to make it potable, and delivers the potable water under pressure required for modern residential water systems, a generally elongated water storage tank provided with spaced opposite end walls of a predetermined lateral dimension and having a longitudinal axis therebetween, a generally elongated closed pressure tank capable of containing water and air under pressure required for modern residential water systems, said pressure tank being substantially totally enclosed within said storage tank and being provided with spaced opposite curved end portions of a lateral dimension less than said predetermined dimension and having a longitudinal axis generally parallel to said longitudinal axis of said storage tank, one said end portion of said pressure tank intersecting and being rigidly connected to one said end wall of said storage tank, pipe means in fluid communication between said storage and pressure tanks for conveying potable water from said storage tank to said pressure tank, pump means operatively connected to said pipe means for automatically pumping potable water to said pressure tank from said storage tank to maintain a selected level therein and means for automatically maintaining air in said pressure tank under pressure sufficient to deliver potable water from said pressure tank under pressure required for modern residential water systems.

4,340,473
APPARATUS FOR JOINT PARTICULATE RECOVERY AND LIQUID PURIFICATION

William E. Lindman, Fountain Valley, and John A. Alexander, Cayucos, both of Calif., assignors to Precipitator Corporation, Santa Fe Springs, Calif.

Division of Ser. No. 840,414, Oct. 7, 1977, Pat. No. 4,224,148, which is a continuation of Ser. No. 597,217, Jul. 18, 1975, abandoned. This application Sep. 22, 1980, Ser. No. 189,339
Int. Cl.³ B01D *21/01*
U.S. Cl. 210—173 4 Claims

1. An apparatus for purification of contaminated liquid comprising a plurality of sequentially flow-connected units, each electrically insulated from the ground and adjacent units and including liquid flow control means for moving a liquid medium through each unit at a predetermined flow rate which prevents coalescence of particles suspended in the medium, said units being sequentially arranged as follows: (a) liquid inlet and container means including associated means for selectively mascerating and distributing solid components which will accept a galvanic charge into the liquid medium; (b) acidic treatment means flow connected to said container means and including means for regulation of pH by selective introduction of acidic and gaseous oxidizing agents throughout the medium; (c) container and reactant means flow connected to said last reaction means and comprising a source of soluble metal ions adapted to mingle with the flowing medium for reaction with said acidic and oxidizing agents to impart a galvanic charge on said solid components, and means for subsequently aerating the medium by passing air therethrough; (d) neutralizing means flow connected to said last reactive means and including an elongated chamber containing successive downstream air delivery conduits individually having ejection nozzles transversely disposed within the flow stream at successive staggered angular displacement from a longitudinal axial plane of

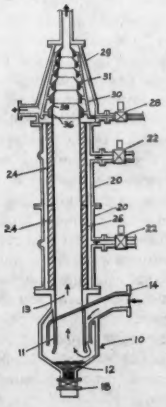


the chamber, which conduits have individual flow control means for adjusting air inflow therethrough to changing turbidity of the flow stream immediately adjacent a nozzle and thus restrain precipitation from the medium; and (e) means for flocculating separable components of the alkaline flow stream including electrode and switch means connected with said elongated for electrically grounding the alkaline medium.

4,340,474
CONVERGING FLOW FILTER

Ian R. W. Johnston, 8 Kennedy St., Glenroy, Victoria, Australia

Filed Sep. 24, 1980, Ser. No. 190,231
Claims priority, application United Kingdom, Sep. 29, 1979, 7933861
Int. Cl.³ B01D *46/12*
U.S. Cl. 210—199 11 Claims



1. A filter for solids-bearing fluid including a filter means adapted to receive the fluid into the larger diameter end of the

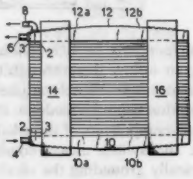
filter, the filter including a plurality of spaced, substantially annular, porous segments, each segment including means to focus entrained solids in the fluid into the central mainstream flow of fluid through the filter and means to draw off clean fluid between said segments, said focusing means including means for injecting fluid through said segments into the fluid stream.

4,340,475

MEMBRANE SEPARATION CELL

Menahem A. Kraus, Rehovot; Avinoam Livni, Haifa; Mara Nemas, Neveh Monoson, and Moshe A. Frommer, Rehovot, all of Israel, assignors to A.T. Ramot Plastics Ltd., Tel Aviv, Israel

Filed Jan. 22, 1980, Ser. No. 114,363
Int. Cl.[3] B01D *31/00*
U.S. Cl. 210—232 7 Claims



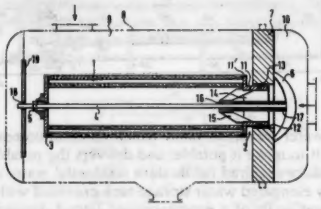
1. A membrane separation cell for separating a permeate from a feed solution, comprising: a stack including a plurality of supporting plates each supporting a membrane on each of its opposite faces and defining a permeate compartment between the membrane and the respective face of the supporting plate; and a plurality of separator plates each interposed between the membranes of adjacent supporting plates and defining a feed solution compartment between the separator plate and the respective membrane; said separator plates being formed with passageways therebetween connecting the feed solution compartments in series through the stack such that the feed solution flows through each feed solution compartment in an inward direction across one face of the separator plate and in an outward direction across the opposite face of the separator plate; the opposite faces of the separator plates being each formed with a thickened outer rim circumscribing a recessed area across which the feed solution flows as a thin layer in a radial direction in contact with the face of the adjacent membrane; said passageways through each separator plate including a peripheral array of openings formed therethrough just inwardly of said thickened outer rim; each membrane supporting plate being apertured at its center and each separator plate being non-apertured at its center; said stack further including: a ring insert interposed between the center of each separator plate and the adjacent membrane for pressing same against the inner rim of the respective supporting plate around its central aperture; a pair of cover plates at the opposite ends of the stack and having extensions projecting radially outwardly of the membranes, supporting plates and separator plates; and a plurality of rods passing through the cover plates outwardly of the membranes, supporting plates and separator plates, for clamping them all together.

4,340,476

ARRANGEMENT FOR MOUNTING DIVIDING OR SEPARATING ELEMENTS IN A FILTERING WATER SEPARATOR

Karl Pötz, Oberursel, and Rudolf Schütz, Königstein-Falkenstein, both of Fed. Rep. of Germany, assignors to Faudi Feinbau GmbH, Oberursel, Fed. Rep. of Germany

Filed Jun. 8, 1981, Ser. No. 271,180
Claims priority, application Fed. Rep. of Germany, Jun. 27, 1980, 3024106
Int. Cl.[3] B01D *27/00*
U.S. Cl. 210—232 12 Claims



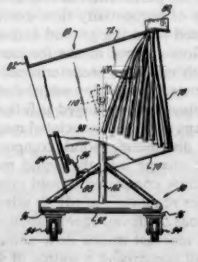
1. An arrangement for mounting elongated dividing or separating elements in a filtering water separator, comprising a stationary mounting plate provided with a plurality of openings each having an axis; means for tensioning both ends of each of the elements and including a tensioning member axially abutting against said mounting plate, and a central spindle member having two end portions of which one end portion is arranged to be connected with one end of each of the elements, whereas the other end portion extends through a respective one of said openings of said mounting plate and is connected with said tensioning member; and a receiving member arranged to receive the other end of a respective one of the elements and sealed against said mounting plate, said receiving member having a substantially radial flange part and a substantially axial projecting part, said projecting part of said receiving member extending with play into said one opening of said mounting plate and is sealed against the latter, said receiving member axially abutting against said tensioning member, and said flange part of said receiving member being axially spaced from said mounting plate.

4,340,477

VACUUM SLUDGE RECEIVER

Russell B. Hobson, Jr., 64 Upper Mountain Ave., Montclair, N.J. 07042, and Roger B. Vannelli, 38 Cottontail Trail, Upper Saddle River, N.J. 07458

Filed Apr. 30, 1979, Ser. No. 34,929
Int. Cl.[3] B01D *29/18*
U.S. Cl. 210—241 18 Claims



18. Apparatus for separating liquids and solids from a mixture of the two comprising:

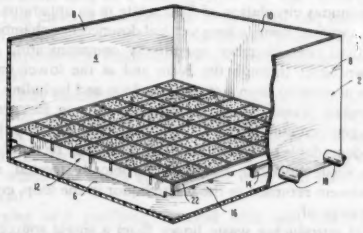
a vessel for receiving a mixture of liquids and solids;
support means for the vessel;
elongated extractor elements disposed proximate the bottom of the area of the vessel and supported along their length for receiving the mixture of solids and liquids;
means for communicating a source of vacuum to the extractor elements at one point thereof to draw a liquid from the mixture of liquid and solids through the extractor elements and away from the vessel;
said extractor elements being fixed at one point thereof and flexible along the length thereof and being moveable relative each other when proximate the bottom of the area of the vessel for receiving the mixture of solids and liquids;
means to rotate the vessel to remove the remainder of the mixture of liquids and solids after extraction of the liquid; and
said extractor elements being sufficiently flexible under the force of gravity to enable substantial deflection for movement away from the bottom of the area of the vessel for receiving the mixture of liquid and solids upon angular displacement of said vessel to enable sufficient access for cleaning the extractor elements and the areas of the vessel proximate the extractor elements from which said extractor will be movable away from when the vessel is angularly displaced.

4,340,478

FILTER MEDIA AND FILTER APPARATUS

Forrest B. Stannard, Ft. Lauderdale, and Edward J. Highstreet, Coral Springs, both of Fla., assignors to The DeHydro Corporation, Charlotte, N.C.

Filed Aug. 18, 1981, Ser. No. 294,039
Int. Cl.³ B01D *23/02, 39/14*
U.S. Cl. 210—286 **13 Claims**



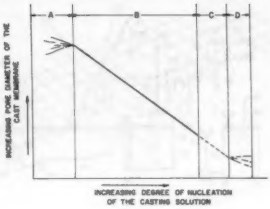
1. A filter media comprising:
a first series of parallel, elongated rigid strips, each strip in said series having substantially equal transverse dimensions and having a multiplicity of slots extending from the top edge thereof part way into the strip normal to the longitudinal axis of the strip, all said slots in all said strips being of substantially the same width and depth,
a second series of parallel, elongated rigid strips having a cross-section substantially equal to said slots fixed in said slots normal to said first series of strips forming a grid of parallelogram openings,
said grid openings all being filled with rigid, porous filter material consisting essentially of solid particles held in a matrix of cured resin, said filter material together with said first and second series of strips presenting a substantially flat upper surface on said filter media,
the depth of said filter material being at least equal to the depth of said slots but substantially less than the transverse dimension of said first series strips.

4,340,479

PROCESS FOR PREPARING HYDROPHILIC POLYAMIDE MEMBRANE FILTER MEDIA AND PRODUCT

David B. Pall, Roslyn Estates, N.Y., assignor to Pall Corporation, Glen Cove, N.Y.

Continuation-in-part of Ser. No. 905,698, May 15, 1978, abandoned. This application Oct. 20, 1980, Ser. No. 198,569
Int. Cl.³ B01D *31/00*
U.S. Cl. 210—490 **162 Claims**



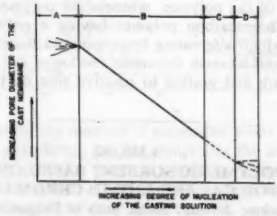
155. A multilayer hydrophilic skinless alcohol-insoluble polyamide resin membrane sheet of alcohol-insoluble hydrophobic polyamide resin having a ratio CH_2:NHCO of methylene CH_2 to amide NHCO groups within the range from about 5:1 to about 7:1, capable when completely immersed in water of being wetted through within no more than one second, and reverting when heated to a temperature just below the softening temperature of the membrane to a hydrophobic material which is no longer wetted by water, and having at least two membrane layers integrally adhered together.

4,340,480

PROCESS FOR PREPARING LIQUOPHILIC POLYAMIDE MEMBRANE FILTER MEDIA AND PRODUCT

David B. Pall, Roslyn Estates, and Frank Model, Dix Hills, both of N.Y., assignors to Pall Corporation, Glen Cove, N.Y.

Continuation-in-part of Ser. No. 905,698, May 15, 1978, abandoned. This application Oct. 20, 1980, Ser. No. 198,570
Int. Cl.³ B01D *31/00*
U.S. Cl. 210—490 **79 Claims**



40. A liquophilic skinless alcohol-insoluble polyamide resin membrane sheet of alcohol-insoluble liquophobic polyamide resin, capable when completely immersed in an organic liquid having a surface tension of from about 40 to about 60 dynes/cm of being wetted through within no more than one second, and reverting when heated to a temperature just below the softening temperature of the membrane to a liquophobic material which is no longer wetted by such organic liquids.

4,340,481

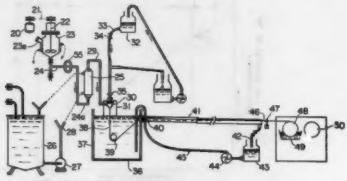
MEMBRANE FILTRATION TYPE HOLLOW FIBERS

Mashahiro Mishiro, Moriyama; Tokio Nishikawa, Hikone; Shigeyasu Ohashi, Moriyama, and Yasuo Yokokawa, Tanashi, all of Japan, assignors to Asahi Kasei Kogyo Kabushiki, Osaka, Japan

Division of Ser. No. 831,198, Sep. 7, 1977, Pat. No. 4,234,431. This application Dec. 28, 1979, Ser. No. 107,975

Int. Cl.³ B01D *39/16*

U.S. Cl. 210—500.2 2 Claims



1. A membrane filtration type hollow fiber comprised of a single material phase, the material being a synthetic or semi-synthetic chain high polymer capable of forming fibers other than cellulose acetate, wherein the cylindrical wall defining said hollow fiber represents a three-dimensional net-like structure of fine filtering passages of 0.05 to 1 micron, said structure occupying the whole mass of said wall when seen in any cross-section of said wall, providing thus an effective and active filtering zone, the total pore volume amounting to at least 55%, active points of the filtering passages for governing minimum passable sizes of said passages for solids included in a filtering liquor to be treated being distributed at random throughout the whole mass of said wall providing said active zone, said passages being nearly uniform.

4,340,482

PROCESS FOR GRAFTING AMINO ACID MOLECULES ONTO PREFORMED POLYMER SURFACES AND PRODUCTS PREPARED THEREBY

Shmuel Sternberg, Lexington, Mass., assignor to Millipore Corporation, Bedford, Mass.

Continuation of Ser. No. 879,746, Feb. 21, 1978, abandoned. This application Apr. 3, 1980, Ser. No. 136,908

Int. Cl.³ B01D *31/00*

U.S. Cl. 210—500.2 13 Claims

1. A preformed microporous polymeric article having a surface onto which molecules of an amino acid have been grafted to produce an altered surface characteristic without altering substantially the subsurface physical and chemical properties of the polymer, wherein the polymer in predominantly a fluorocarbon polymer having a polyvinyl carbon chain to which alternating hydrogen and fluorine atoms are attached, and wherein the amine residue of the amino acid is reacted with and grafted to reactive sites on the polymeric surface.

4,340,483

POLAR POLYMERIC SORBENT BASED ON GLYCIDYL ESTERS FOR GAS AND LIQUID CHROMATOGRAPHY

Jaromir Lukas; Jaroslav Kalal, both of Prague, and Frantisek Svec, Kladno, all of Czechoslovakia, assignors to Ceskoslovenska akademie ved, Prague, Czechoslovakia

Filed Dec. 23, 1977, Ser. No. 863,936

Claims priority, application Czechoslovakia, Jan. 19, 1977, 372/77

Int. Cl.³ B01D *15/08*

U.S. Cl. 210—502 2 Claims

1. The polar polymeric sorbent based on glycidyl esters suitable for gas and liquid chromatography, which consists of the macroporous copolymer containing 3–70 percent of polymerized monomeric units with epoxy groups selected from the group consisting of glycidyl methacrylate and glycidyl acrylate, 97–30 percent of a crosslinking agent selected from the group consisting of alkylene diacrylate, alkylene dimethacrylate, hydroxyalkylene diacrylate, hydroxyalkylene dimethacrylate, where the alkylene contains 1–6 carbon atoms, and divinylbenzene, and 0 to 30 percent of polymerized monomeric units with nitrile groups selected from the group consisting of acrylonitrile and methacrylonitrile.

4,340,484

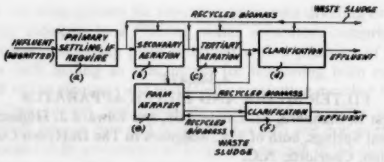
METHOD FOR THE FROTH FLOTATION SEPARATION AND TREATMENT OF SLOWLY BIODEGRADABLE COMPONENTS IN WASTE TREATMENT

David C. I. Pollock, Richmond Hill, and Malcolm A. Wilson, Vegreville, both of Canada, assignors to C-I-L Inc., North York, Canada

Continuation-in-part of Ser. No. 159,351, Jun. 13, 1980, abandoned. This application May 18, 1981, Ser. No. 264,839 Claims priority, application Canada, Oct. 26, 1979, 338536

Int. Cl.³ C02F *3/22*

U.S. Cl. 210—607 1 Claim



1. In a modified activated sludge waste treatment method wherein an aerobic biological reaction takes place during the continuous circulation of fluid waste in an apparatus comprising a surface basin, a long vertical downcomer chamber, a long vertical riser chamber operatively communicating with the downcomer through the basin and at the lower end of the downcomer to form a circulating loop and including means to circulate waste liquor through said loop in the presence of oxygen-containing gas, the improvements whereby the slowly biodegradable components of the waste may be separated from the waste liquor in the loop, aerobically treated, and after treatment returned to the waste liquor in the loop, comprising the steps of:

(a) introducing waste liquor from a single source into the said riser chamber of the said loop,

(b) adding oxygen-containing gas to the waste liquor in the said riser chamber to lift said waste liquor for circulation through said loop and to provide oxygenation of the said waste,

(c) collecting from the surface of said waste in the said surface basin any foam containing slowly biodegradable materials together with activated sludge, which foam has been produced by stripping the supersaturated dissolved gases ascending from depth in the said circulating loop by the action of the said added oxygen-containing gas in the said riser,

(d) separating said foam and contained slowly biodegradable materials and activated sludge from the surface of the liquid waste in the said basin and transferring said foam and contained materials to a foam oxidation vessel,

(e) aerating said foam in said foam oxidation vessel to produce further biodegraded liquid and solids mixture, and

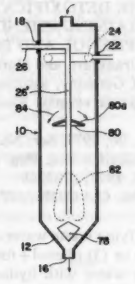
(f) returning the said further biodegraded liquids and solids mixture from step (e) to the circulating waste in the said loop via step (a).

4,340,485

COUNTERCURRENT LIQUID-SOLID CONTACTING APPARATUS

Yorifumi Ikeda, Suita, and Yasuhiro Tsujimoto, Toyonaka, both of Japan, assignors to Takeda Chemical Industries, Ltd., Osaka, Japan

Continuation of Ser. No. 865,327, Dec. 28, 1977, abandoned.
This application Nov. 29, 1979, Ser. No. 98,392
Claims priority, application Japan, Oct. 7, 1977, 52-121255
Int. Cl.[3] B01D *15/08*
U.S. Cl. 210—675 4 Claims



4. A method of substantially purifying liquid by countercurrent liquid-solid contact and of regenerating the purifying material used to purify the liquid, said method comprising the steps of:

passing said liquid to be purified upwardly through a bed of purifying material in a liquid treating column;

withdrawing substantially purified liquid from said liquid treating column at the upper portion of said liquid treating column beneath a portion of said bed of purifying material which alone acts as a settling layer for the remaining purifying material therebeneath from which said purified liquid is directly withdrawn and thereby preventing upward expansion or fluidization of said remaining purifying material;

intermittently transferring a portion of said purifying material, after said liquid being purified has passed therethrough, from a downwardly inclined bottom of said liquid treating column into the top of a regenerating column where impurities are removed from said purifying material

discharging said purifying material with said impurities removed therefrom from said regenerating column and returning said discharged material to the top of said bed of purifying material in said liquid treating column;

maintaining the bottom portion of said liquid treating column completely filled with said purifying material while preventing the formation therein of any cavities;

supplying said liquid to be purified into said liquid treating column through an imperforate pipe arranged coaxially of said liquid treating column and having an upper end extending into said liquid treating column at an upper portion thereof and a lower end having an open discharge end directed downwardly and located at a position adjacent but spaced a predetermined position above said bottom of said liquid treating column, and thereby discharging said liquid downwardly through said open discharge end directly into said purifying material adjacent said bottom of said liquid treating column; and

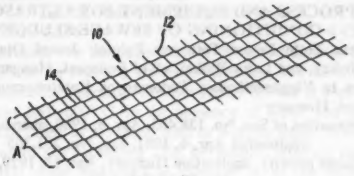
directing said downwardly directed liquid outwardly and upwardly through said purifying material only, thereby purifying said liquid to form said substantially purified liquid, whereafter said purified liquid is withdrawn from said liquid treating column.

4,340,486

OIL SORBENT STRUCTURES AND METHOD OF PICKING UP OIL

Clare E. Swanson, White Bear Lake, Minn., assignor to Conwed Corporation, St. Paul, Minn.

Continuation of Ser. No. 861,641, Dec. 19, 1977, abandoned.
This application Aug. 16, 1979, Ser. No. 67,158
Int. Cl.[3] C02F *1/28*
U.S. Cl. 210—693 5 Claims



1. A method of picking up oil, said method comprising contacting the oil with an oil sorber, said oil sorber comprising a plurality of adjacent strips of oleophilic, hydrophobic, flexible netting material bound together, said strips of netting material:

(a) being from about 2 to about 10 inches in width;

(b) being formed by extrusion with a plurality of sets of strands which cross at an angle;

(c) having from 2 to about 5 strands per lineal inch;

(d) being biaxially oriented; and

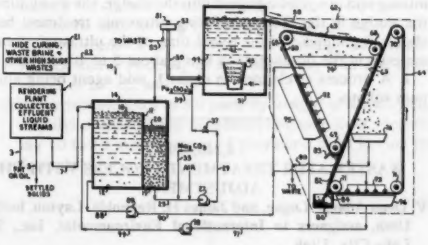
(e) weighing from about ½ to about 5 pounds per thousand square feet.

4,340,487

PROCESS FOR PURIFYING WATER

Michael R. Lyon, 800 N. Atlantic, Kansas City, Mo. 64116

Filed Dec. 24, 1980, Ser. No. 219,886
Int. Cl.[3] C02F *1/52*
U.S. Cl. 210—705 7 Claims


HIDE CURING WASTE BRINE + OTHER HIGH SOLIDS WASTES
TO WASTE
RENDERING PLANT COLLECTED EFFLUENT LIQUID STREAMS
SETTLED SOLIDS

1. A process for the removal of suspended solids from stick water exiting a rendering process comprising the steps of:

(a) collecting said stick water in a holding region;

(b) treating a first flow of said stick water from said holding region with a flocculating agent;

(c) placing said stick water having been treated with said flocculating agent into a vessel;

(d) allowing formation in said vessel of a lower liquid phase having a relatively low suspended solids content and an upper phase having a relatively high suspended solids content;

(e) removing said upper phase from said vessel;

(f) placing said upper phase after removal from said vessel onto a filter media such that liquid is removed therefrom and said suspended solids form a substantially liquid free solids cake;

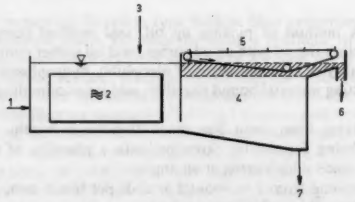
(g) removing a substantial portion of said solids cake from said filter media;
(h) utilizing a second flow of said stick water from said holding region prior to treatment of the stick water with a flocculating agent to backwash said filter media; and
(i) returning said stick water utilized to backwash said filter media to said holding region.

4,340,488

PROCESS AND EQUIPMENT FOR ULTRASONIC CONDITIONING OF SEWAGE SLUDGES

Andras Toth; Emese Toth nee Palotai; Jozsef Olah; Jozsef Bitskey, and Lajos Bulkai, all of Budapest, Hungary, assignors to Vizgazdalkodasi Tudomanyos Kutatokozpont, Budapest, Hungary

Continuation of Ser. No. 138,403, Apr. 8, 1980, abandoned. This application Apr. 6, 1981, Ser. No. 251,365
Claims priority, application Hungary, Apr. 13, 1979, TO 1103
Int. Cl.³ C02F *1/24*
U.S. Cl. 210—705 **2 Claims**



1. A sludge treatment process, comprising feeding sludge to a first tank, applying ultrasonic vibration to the sludge in the first tank, feeding the sludge after ultrasonic vibration to a flotation tank, separating solids from the ultrasonic-treated sludge in the flotation tank solely by means of flotation of the solids to the surface of the material in the flotation tank by gas bubbles generated within the sludge during the course of ultrasonic treatment, and adding an inorganic chemical coagulating agent to the sludge in the first tank after the sludge has been decomposed to a dispersed homogeneous colloidal mass by the ultrasonic treatment in the first tank, said ultrasonic treatment mixing said coagulating agent into the sludge, the dwell time of the sludge in the first tank during ultrasonic treatment being about 10 minutes and the dwell time of the ultrasonic treated material in the flotation tank being about 5 to 10 minutes.

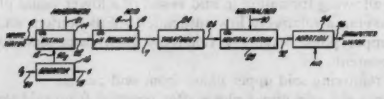
2. A process as claimed in claim 1, said agent being aluminum sulfate.

4,340,489

WASTEWATER TREATMENT PROCESS WITH PH ADJUSTMENT

V. Dean Adams, Logan, and James H. Reynolds, Layton, both of Utah, assignors to International Environmental, Inc., Salt Lake City, Utah

Continuation-in-part of Ser. No. 138,214, Apr. 7, 1980, Pat. No. 4,304,673. This application Aug. 27, 1980, Ser. No. 181,780
The portion of the term of this patent subsequent to Dec. 8, 1998, has been disclaimed.
Int. Cl.³ C02F *1/72, 1/52*
U.S. Cl. 210—718 **45 Claims**



1. A continuous process for disinfecting wastewater containing infectious microorganisms comprising the steps of:
(a) combining the wastewater with acid to reduce the pH of the wastewater and combining the wastewater with sufficient SO_2 so that the wastewater has a selected free SO_2 content of at least about 5 mg/liter and less than about 200 mg/liter and a pH of from about 1 to about 4;
(b) maintaining the combined SO_2/wastewater in a treatment zone at the selected free SO_2 content and pH for about 5 to about 60 minutes; and
(c) withdrawing wastewater from the treatment zone, the withdrawn wastewater containing substantially no infectious microorganisms.

4,340,490

PROCESS FOR THE DETOXIFICATION OF WASTE WATER CONTAINING PHENOL, PHENOL DERIVATIVE OR PHENOL AND FORMALDEHYDE

Helmut Junkermann, Frankfurt, and Horst Krüger, Darmstadt, both of Fed. Rep. of Germany, assignors to Deutsche Gold- und Silber-Scheideanstalt vormals Roessler, Frankfurt, Fed. Rep. of Germany

Filed Dec. 20, 1977, Ser. No. 862,760
Claims priority, application Fed. Rep. of Germany, Jan. 27, 1977, 2703267; Jan. 27, 1977, 2703268
Int. Cl.³ C02F *1/72*
U.S. Cl. 210—759 **13 Claims**

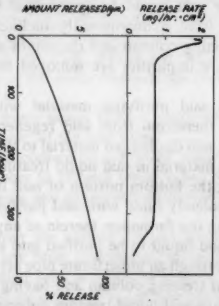
1. A process for purifying waste water containing (1) phenol, (2) a substitute phenol or (3) phenol+formaldehyde comprising treating the waste water with hydrogen peroxide in the presence of 0.5 to 2 grams per liter of waste water of the complex sodium iron (III) ethylenediamine tetraacetate trihydrate or the equivalent amount of the complex sodium iron (II) ethylenediamine tetraacetate, the treatment being at least initiated under alkaline conditions.

4,340,491

COLD WATER-INSOLUBLE POLYVINYL ALCOHOL POUCH FOR THE CONTROLLED RELEASE OF ACTIVE INGREDIENTS

Ping I. Lee, Valley Cottage, N.Y., assignor to Airwick Industries, Inc., Carlstadt, N.J.

Division of Ser. No. 35,369, May 4, 1979, Pat. No. 4,289,815, which is a continuation-in-part of Ser. No. 919,120, Jun. 26, 1978, abandoned. This application May 8, 1981, Ser. No. 262,004
Int. Cl.³ B65D *1/20, 11/20;* C02B *3/06*
U.S. Cl. 210—764 **9 Claims**



5. A method for the controlled release of active ingredient into an aqueous medium having a maximum temperature of 60° C. consisting of the steps of (1) preparing a sealed pouch of cold water-insoluble polyvinyl alcohol in film form, said polyvinyl alcohol being at least about 99% hydrolyzed and having a minimum degree of swelling in water of about 120%, and enclosed therein an effective amount of an active ingredient having at least a minimum solubility in water; said sealed pouch having a maximum ratio of weight of active ingredient to pouch volume of about 50 lb/ft^3; (2) introducing said sealed pouch into said aqueous medium; (3) swelling said polyvinyl alcohol film; (4) introducing the aqueous medium into said pouch to dissolve said active ingredient; the aqueous medium

containing said active ingredient having a pH in the range of 2.5–10.0; and (5) allowing said active ingredient to diffuse through said swollen film and be released into said aqueous medium.

4,340,492

OIL RECOVERY BY SURFACTANT WATERFLOODING

Stamoulis Stournas, Flemington, N.J., assignor to Mobil Oil Corporation, NewYork, N.Y.

Filed Nov. 26, 1976, Ser. No. 745,323
Int. Cl.[3] E21B *43/22*
U.S. Cl. 252—8.55 D 4 Claims

1. In a method for the recovery of oil from a subterranean oil reservoir penetrated by spaced injection and production systems in which an aqueous fluid is introduced into said reservoir via said injection system to displace oil to said production system, the improvement comprising employing as at least a portion of the fluid introduced into said injection system a substantially oil-free aqueous liquid containing a water-soluble anionic-nonionic surfactant characterized by the formula

wherein

R is an aliphatic-substituted succinimido group or its succinamic acid derivative,

Ar is a mononuclear or condensed ring dinuclear aryl group,

Ao is a polyalkylene oxide having a terminal hydroxyl group and containing at least 3 alkylene oxide units having 2 or 3 carbon atoms therein,

n is 1 or 2,

M is an alkali metal, ammonium, or substituted ammonium ion, and

n_1 is 1 or 2.

4,340,493

DETERGENT-DISPERSANT COMPOSITION FOR LUBRICATING OR FUEL OILS

Shigeo Miyata, Takamatsu, Japan, assignor to Kyowa Chemical Industry Co. Ltd., Tokyo, Japan

Filed May 1, 1981, Ser. No. 259,432
Claims priority, application Japan, Mar. 14, 1980, 55/31682
Int. Cl.[3] C10M *1/10, 3/02*
U.S. Cl. 252—18 7 Claims

1. A detergent-dispersant composition for lubricating or fuel oils, said composition consisting essentially of

(a) an amount effective as a detergent-dispersant of a hydrotalcite having a specific surface area, determined by the BET method, of up to about 60 m^2/g and an average secondary particle size of up to about 5 microns, the hydrotalcite particles being untreated or sulface-treated with an anionic surface-active agent, and the hydrotalcite being represented by the following formula

$$Mg_xAl_2(OH)_{6+2x-2y}(CO_3)_y \cdot mH_2O$$

wherein x is a positive number represented by $3<x<20$, y is a positive number represented by $0<y<2$, and m is a positive number of up to 7, and

(b) a hydrophobic dispersant or diluent.

4,340,494

PROCESS FOR THE MANUFACTURE OF FERROMAGNETIC CHROMIUM DIOXIDE

Manfred Ohlinger, Frankenthal; Guenter Väeth, Limburgerhof; Norbert Mueller, Friedelsheim, and Eugen Wettstein, Germersheim, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Fed. Rep. of Germany

Filed Oct. 21, 1980, Ser. No. 199,347
Claims priority, application Fed. Rep. of Germany, Oct. 22, 1979, 2942646
Int. Cl.[3] C01G *37/027;* H01F *1/36*
U.S. Cl. 252—62.56 4 Claims

1. A process for the manufacture of ferromagnetic chromium dioxide by reacting oxides of trivalent and hexavalent chromium under a pressure of from 100 to 700 bar at a temperature from 200°–600° C. in the presence of water and of antimony(III) oxide as modifier, with or without other modifiers in an amount not exceeding 15% by weight, wherein the antimony(III) oxide employed as modifier is, to the extent of more than one-third of the antimony(III) oxide, present as the senarmontite cubic modification, has a specific surface area, measured by the BET method, of from 2.5 to 15 m^2/g, and is added in an amount of from 0.1 to 0.5% by weight, based on the resulting chromium dioxide.

3. A process as claimed in claim 1 or 2, wherein acicular iron oxide particles in the form of alpha-FeOOH are employed, as additional modifier, in an amount of from 0.5 to 15% by weight, based on chromium dioxide.

4,340,495

ALKYL SILOXANE ALKOXY SILOXANE COPOLYMERIC HYDRAULIC FLUIDS

Edgar D. Brown, Jr., Schenectady, N.Y., assignor to General Electric Company, Waterford, N.Y.

Filed Apr. 4, 1980, Ser. No. 137,339
Int. Cl.[3] C10M *3/46, 3/44*
U.S. Cl. 252—78.3 15 Claims

1. A silicone fluid useful as a hydraulic fluid comprising a mixture of

(a) 100 parts by weight of a silicone base polymer having, approximately, 3 to 20 mole percent of polymeric units having the formula $R_3SiO_{\frac{1}{2}}$, 1.5 to 20 mole percent of polymeric units having the formula $RSiO_{1.5}$, and 60 to 95 mole percent of polymeric units having the formula R_2SiO, and a viscosity of approximately 1 to 200 centistokes at 25° C., and

(b) approximately 0.5 to 5.0 parts by weight of a dialkylalkoxysilyl chain-stopped polydialkylsiloxane fluid comprising 10 to 60 mole percent of polymeric units having the formula

and 40 to 90 mole percent R_2SiO units and having a viscosity of approximately 10 to 50 centistokes at 25° C.; wherein R represents the same or different monovalent hydrocarbon radical, M is selected from the class consisting of R—, ROR'—, ROR'OR'—, $R(OC_xH_{2x})_n$—, and

such that R is as previously described, R' is selected from the class consisting of alkylene and arylene radicals having up to 20 carbon atoms, x varies from 2 to 4 and n varies from 4 to 100.

4,340,496
ANION EXCHANGE CHROMATOGRAPHIC COMPOSITION FOR SEPARATION OF POLYFUNCTIONAL COMPOUNDS

Seth R. Abbott, Concord, Calif., assignor to Varian Associates, Inc., Palo Alto, Calif.

Division of Ser. No. 16,847, Mar. 2, 1979, Pat. No. 4,290,892, which is a continuation-in-part of Ser. No. 953,380, Oct. 23, 1978, Pat. No. 4,275,300. This application Jun. 9, 1981, Ser. No. 271,903

Int. Cl.³ B01D *15/08;* **B01J** *41/06*

U.S. Cl. 252—184 **20 Claims**

1. A weak anion exchange composition comprising an inert porous particle having a size of about 5 to about 20 microns, and a modified tetra-substituted silane material of the general formula

$$R_3—Si—(CH_2)_x—NYZ$$

wherein R is an alkyl or an alkoxy, having 1 to 5 carbon atoms, x is an integer of 2 or 3 and Y and Z are hydrogen, alkyl, substituted alkyl, or an alkyl amine fixedly attached to covalent bonding to the surface of said particle; said particle with said modified tetra-substituted silane material fixedly attached by covalent bonding having been washed with an acid to produce said weak anion exchange composition.

4,340,497
(N-SUBSTITUTED CARBAMOYLOXY) ALKANOYLOXYALKYL ACRYLATE ESTERS

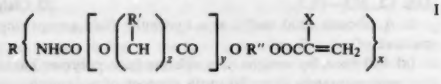
Robert J. Knopf, Saint Albans, W. Va., assignor to Union Carbide Corporation, Danbury, Conn.

Filed Mar. 21, 1980, Ser. No. 132,650

Int. Cl.³ C07C *125/065, 125/073*

U.S. Cl. 252—188.3 R **17 Claims**

1. An (N-substituted carbamoyloxy) alkanoyloxyhydrocarbyl acrylate ester of the formula



I

wherein R is an unsubstituted or substituted (i) linear or branched alkyl group having from 1 to 4 carbon atoms or (ii) aryl, alkaryl or aralkyl group having 6 or 10 ring carbon atoms or (ii) cycloalkyl group having from 5 to 8 ring carbon atoms when x is 1 and polyvalent alkylene, arylene, alkarylene, aralkylene or cycloalkylene having carbon atom values defined for (i) to (iii) supra and a valence equal to the value of x when x is greater than 1; wherein the substituents on the R group are not reactive with the isocyanato radical; R′ is hydrogen or alkyl or alkoxy having from 1 to 4 carbon atoms; R″ is a linear or branched divalent alkylene of 1 to 10 carbon atoms, divalent cycloalkylene of 5 to 12 ring carbon atoms or divalent arylene of 6 to 10 ring carbon atoms; X is hydrogen, methyl or cyano; x has a value of from 1 to 4; y has an average value of from 1 to 20; and z has a value of from 3 to 10.

10. A composition comprising a compound as claimed in claim 1 and a photoinitiator.

4,340,498
HALOGENATED ESTER DERIVATIVES

Shigeru Sugimori, Yokohama, Japan, assignor to Chisso Corporation, Tokyo, Japan

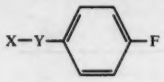
Filed Jan. 23, 1981, Ser. No. 227,942

Claims priority, application Japan, Jan. 25, 1980, 55-7539; Feb. 7, 1980, 55-13889; Mar. 27, 1980, 55-39202

Int. Cl.³ C09K *3/34;* **G02F** *1/13;* **C07C** *69/62, 69/63, 69/353, 69/635, 69/75*

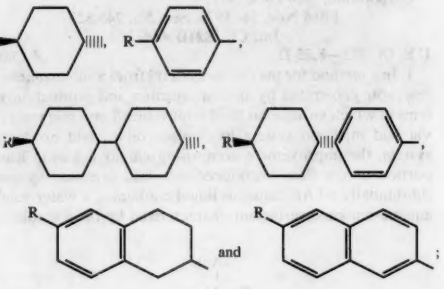
U.S. Cl. 252—299.5 **8 Claims**

1. In a liquid crystalline admixture, the improvement wherein at least one component of said admixture is a halogenated ester derivative expressed by the general formula



(I)

wherein X represents a group selected from the group consisting of



R represents an alkyl group or an alkoxy group, each having 1 to 15 carbon atoms; and Y represents carboxyl group the symbol ▬ and the symbol ||||||| being in a trans-configuration relative to cyclohexane or bicyclohexane ring.

4,340,499
METHOD FOR TREATING RADIOACTIVE SOLUTIONS

Gustav Fischer, Nuremberg, Fed. Rep. of Germany, assignor to Kraftwerk Union Aktiengesellschaft, Mülheim, Fed. Rep. of Germany

Filed Feb. 28, 1980, Ser. No. 125,678

Claims priority, application Fed. Rep. of Germany, Mar. 14, 1979, 2910034

Int. Cl.³ G21F *9/10, 9/12, 9/16*

U.S. Cl. 252—628 **3 Claims**

1. Method of treating aqueous waste solutions containing Co^{58} and Co^{60}, other radionuclides selected from the group consisting of Mn^{54}, Sb^{124}, Sb^{125} and Zn^{65} and mixtures thereof and organic complexing agents, which comprises maintaining the pH of the solution at about 5 and adding alkali-metal permanganate to the solution in excess amount to oxidize the complexing agents and subsequently adding $MnSO_4$ to the solution to reduce the excess MnO_4^- in the solution to MnO_2 which latter separates as a solid from the solution and adsorbs said other radionuclides contained in the aqueous solution subjected to treatment, separating the solids from the solution raising the pH of the separated solution to about 10.5, adding a complex $[Co^{+3}(NH_3)_6]Cl_3$ salt as a carrier for Co^{58} and Co^{60} to the solution, adding a reducing agent to the solution to reduce Co^{+3} to Co^{+2}, adding a decomplexing agent to free Co^{+2} from the complex, and then adding a precipitating agent to the solution to precipitate Co^{+2} as a compound insoluble in the solution, and subsequently encapsulating the said solids and said insoluble compounds in a binder.

4,340,500

LIQUID DEFOAMER AND PROCESS OF USE THEREOF

Francis J. Boylan, Newton, N.J., assignor to Drew Chemical Corporation, Boonton, N.J.

Continuation-in-part of Ser. No. 135,478, Mar. 31, 1980, Pat. No. 4,303,549, and Ser. No. 85,781, Oct. 18, 1979, abandoned. This application Mar. 2, 1981, Ser. No. 239,430

The portion of the term of this patent subsequent to Dec. 1, 1998, has been disclaimed.

Int. Cl.[3] B01D *19/04*

U.S. Cl. 252—321 30 Claims

1. A pumpable free flowing aqueous defoaming composition which can be stored in a ready to use form, comprising:

(a) water;

(b) at least one solid alcohol having from 14 to 28 carbon atoms;

(c) at least one solid fatty acid;

(d) at least one soap of a solid fatty acid, said components (b), (c) and (d) being present in the water in an effective defoaming amount and to provide a dispersed solids content in the water of at least 5% and no greater than about 30%, by weight; and

(e) a surfactant comprised of at least one member selected from the group consisting of non-ionic surfactants and anionic surfactants, said anionic surfactant being selected from the group consisting of:

alcohol sulfates
alkaryl sulfonates
ethoxylated alcohol sulfates
sulfates and sulfonates of ethoxylated alkyl phenols sulfates of fatty esters
sulfates and sulfonates of alkyl phenols
sulfonates of condensed naphthalenes
sulfonates of naphthalene
sodium derivatives of sulfo-succinates
alkali salts of petroleum sulfonates
alkali phosphate esters
sulfonated alkyl esters
sodium polymeric carboxylic acid

said surfactant being a surfactant which in combination with components (b), (c) and (d) prevents formation of a gelled mass of the solids at 20%, by weight, dispersed solids in the water to provide a pumpable free flowing dispersion of the solids in the water.

15. A pumpable free flowing aqueous defoaming composition which can be stored in a ready to use form, comprising:

(a) water;

(b) at least one solid alcohol having from 14 to 28 carbon atoms;

(c) at least one solid fatty acid;

(d) at least one soap of a solid fatty acid, said components (b), (c) and (d) being present in the water in an effective defoaming amount and to provide a dispersed solids content in the water of from about 20% to about 30%, by weight; and

(e) a surfactant comprised of at least one member selected from the group consisting of non-ionic surfactants and anionic surfactants, said anionic surfactant being selected from the group consisting of:

alcohol sulfates
alkaryl sulfonates
ethoxylated alcohol sulfates
sulfates and sulfonates of ethoxylated alkyl phenols
sulfates of fatty esters
sulfates and sulfonates of alkyl phenols
sulfonates of condensed naphthalenes
sulfonates of naphthalene
sodium derivatives of sulfo-succinates
alkali salts of petroleum sulfonates
alkali phosphate esters
sulfonated alkyl esters
sodium polymeric carboxylic acid

which surfactant in combination with said components (b), (c) and (d) prevents formation of a gelled mass of the solids to provide a pumpable free flowing dispersion of the solids in the water.

4,340,501

FLUID FLOW

Peter J. Davidson, Sedgefield, England, assignor to Imperial Chemical Industries Limited, London, England

Filed Sep. 2, 1980, Ser. No. 183,414

Claims priority, application United Kingdom, Sep. 6, 1979, 7930993

Int. Cl.[3] C01B *3/34*

U.S. Cl. 252—373 6 Claims

1. A process for reacting steam with a gaseous or vaporized hydrocarbon in endothermic conditions flowing over a steam reforming catalyst at a catalyst outlet temperature in the range 600°–1000° C. in a vessel having heated walls, the steam reforming catalyst being in the form of a structure spaced from the vessel walls with through passages angled to the general direction of flow in the vessel, comprising the steps of flowing the reactant mixture alternating (a) through the passages in the catalyst and (b) through the space between the catalyst structure and the heated vessel walls.

4,340,502

TRANSITION METAL COMPOSITION

Ashley D. Bye, The Hague, Netherlands, assignor to Imperial Chemical Industries Limited, London, England

Continuation of Ser. No. 936,896, Aug. 25, 1978, abandoned. This application Oct. 6, 1980, Ser. No. 194,257

Claims priority, application United Kingdom, Aug. 31, 1977, 36341/77; May 24, 1978, 21732/78

Int. Cl.[3] C08F *4/64*

U.S. Cl. 252—429 B 16 Claims

1. A process for the production of a titanium trichloride-containing composition which process comprises

(1) reducing titanium tetrachloride by reacting the titanium tetrachloride with a reducing agent under conditions to give a solid titanium trichloride product which includes an associated aluminium compound containing aluminium and chlorine atoms, wherein the titanium trichloride is formed predominantly in the beta-form;

(2) contacting a suspension of the solid reduction product with compound E and compound L either simultaneously or sequentially, at least part of the contacting being effected while maintaining the suspension at a temperature of at least 60° C. in the presence of at least compound E or compound L; and

(3) subsequent to the contacting with the compound E washing the solid product obtained with an inert hydrocarbon or inert halohydrocarbon liquid

wherein

E is an ether or a thioether;

L is an organic phosphorus-containing Lewis Base compound of the general formula:

$$R^3R^4R^5P(O)_m$$

where

R^3 is a hydrocarbyl, or a hydrocarbyloxy group wherein the hydrocarbyl group contains up to 18 carbon atoms;

R^4 and R^5 which may be the same or different, are each a hydrogen atom or a gorup R^3; and

m is 0 or 1.

4,340,503

CATALYST FOR CONVERTING SYNTHESIS GAS TO LIGHT OLEFINS

V. Udaya S. Rao, Monroeville, and Robert J. Gormley, Pittsburgh, both of Pa., assignors to The United States of America as represented by the United States Department of Energy, Washington, D.C.

Filed Aug. 15, 1980, Ser. No. 178,654
Int. Cl.[3] B01J *21/08, 23/78*
U.S. Cl. 252—459 11 Claims

1. A catalyst comprising a silicalite support having iron and potassium dispersed therethrough wherein said iron is present in the range of from about 5 to about 25 percent by weight of the silicalite and the potassium is present in an amount not less than about 0.2 percent by weight of the silicalite, said silicalite support is substantially aluminum free having less than about 1000 parts per million aluminum.

8. A process for forming a catalyst useful in the catalytic hydrogenation of carbon monoxide comprising preparing a silicalite support substantially free of aluminum, soaking the silicalite support in an aqueous solution of water-soluble iron salts and potassium salts wherein the iron and potassium are present in concentrations such that the dried silicalite has iron present in the range of from about 5 to about 25 percent by weight and has potassium present in an amount not less than about 0.2 percent by weight, and drying the silicalite.

4,340,504

CATALYST FOR A PROCESS FOR DEALKYLATING AROMATIC HYDROCARBONS IN THE PRESENCE OF STEAM

Philippe Courty, Houilles, France; Georgy L. Rabinovich, Leningrad; Victor N. Mojaiko, Otradnoe, both of U.S.S.R., and Jean-Francois Le Page, Rueil-Malmaison, France, assignors to Institut Francais du Petrole, Rueil-Malmaison, France

Filed Nov. 12, 1980, Ser. No. 206,408
Claims priority, application France, Nov. 12, 1979, 79 28029
Int. Cl.[3] B01J *23/36, 23/48, 23/58*
U.S. Cl. 252—465 18 Claims

1. A catalyst containing (a) an alumina carrier and, by weight with respect to the catalyst, (b) from 0.1 to 2% of rhodium, (c) from 0.05 to 2% of at least one metal from group I B of the periodic classification of elements, selected from copper, silver and gold, (d) from 0.05 to 2% of rhenium and (e) from 0.02 to 5% of at least one additional metal selected from lithium, sodium, potassium, rubidium, cesium, beryllium, magnesium, calcium, strontium, barium and uranium.

4,340,505

REDUCING PRECIOUS METAL USE IN CATALYST SUBSTRATES

Calvin M. Dolan, King of Prussia, Pa., assignor to Johnson Matthey, Inc., Malvern, Pa.

Filed Apr. 28, 1981, Ser. No. 258,300
Int. Cl.[3] B01J *21/04, 23/40, 35/04*
U.S. Cl. 252—466 PT 12 Claims

1. A method of producing a coated catalyst from a cylindrical catalyst substrate having a circumferential periphery and an interior honeycomb structure, and utilizing a jacket of liquid impermeable material having first and second ends and fastening means for attaching the first and second ends together and having a height substantially the same as the height of the cylindrical catalyst, comprising the steps of substantially sequentially:

(a) covering the circumferential periphery of the substrate, said covering consisting of the substep of wrapping the jacket around the cylindrical catalyst substrate circumferential periphery and fastening the jacket ends together to provide a cylindrical catalyst substrate having the circumferential periphery thereof covered so that a precious metal liquid solution or suspension will not coat it;

(b) passing the wrapped cylindrical catalyst substrate through a shower of a precious metal liquid solution or suspension so that the honeycomb structure surfaces are coated with precious metal; and

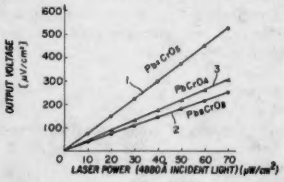
(c) removing the jacket by releasing the fastening means attaching the ends thereof together so as to provide a cylindrical catalyst substrate having a precious-metal coated interior honeycomb structure and a circumferential periphery uncoated by precious metal.

4,340,506

PHOTOELECTRIC TRANSFER DEVICE

Kohji Toda, C-209, No. 2069 Futaba 1-chome, Yokosuka-shi, Kanagawa-ken, Japan; Koji Takahashi, and Isao Matsufuji, both of Tokyo, Japan, assignors to TDK Electronics Co., Ltd., Tokyo and Kohji Toda, Yokosuka, both of, Japan

Filed Jul. 26, 1979, Ser. No. 60,901
Claims priority, application Japan, Jul. 26, 1978, 53/091295; Jul. 26, 1978, 53/091296; Jul. 26, 1978, 53/091297; Jul. 26, 1978, 53/091298; Jul. 26, 1978, 53/091299; Jul. 26, 1978, 53/091300; Jul. 26, 1978, 53/091301
Int. Cl.[3] H01C *13/00*
U.S. Cl. 252—501.1 16 Claims



1. A photoelectric transfer device in which an electroconductive layer having a thickness enabling photoelectric transfer of 0.1 to 100μ is coated on a surface of a solid oxide substrate comprising a lead component at a ratio of 30–99.5 mol % as PbO and an oxide of chromium component at a ratio of 0.5–70 mol %, said substrate being uniformly and integrally associated in a unitary mass as a sheet, rod, plate or film.

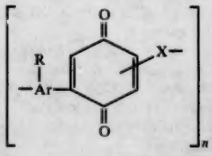
4,340,507

PREPARATION OF ELECTRICALLY CONDUCTIVE POLYAROMATICS, AND THEIR USE IN THE ELECTRICAL INDUSTRY AND FOR RENDERING PLASTICS ANTISTATIC

Herbert Naarmann, Wattenheim; Dieter Naegele, Worms; Klaus Penzien, Frankenthal, and Johannes Schlag, Ludwigshafen, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Fed. Rep. of Germany

Filed Nov. 6, 1980, Ser. No. 204,639
Claims priority, application Fed. Rep. of Germany, Dec. 1, 1979, 2948454
Int. Cl.[3] H01B *1/02*
U.S. Cl. 252—512 3 Claims

1. A process for the preparation of an electrically conductive polyaromatic of the formula



wherein Ar is phenylene, R is H, X is phenylene and n is a whole number of from 1 to 50, said polyaromatic having an electrical conductivity greater than 10^{-2}S/cm, wherein from

0.5 to 5% by weight, based on the polyaromatic employed, of sodium, potassium, rubidium or cesium are added to the polyaromatic, in the absence of moisture and of oxygen.

4,340,508

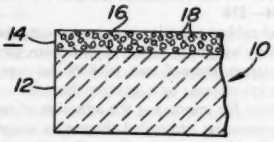
RESISTANCE MATERIAL, RESISTOR AND METHOD OF MAKING THE SAME

Richard L. Wahlers, Churchville, Pa., and Vernon E. Osborne, Boone, N.C., assignors to TRW Inc., Cleveland, Ohio

Division of Ser. No. 7,433, Jan. 29, 1979, Pat. No. 4,293,838. This application Mar. 25, 1981, Ser. No. 247,257

Int. Cl.³ H01B *1/06;* H01C *1/012*

U.S. Cl. 252—520 7 Claims



1. A vitreous enamel resistance material adapted to be applied to and fired on a substrate to form an electrical resistor of relatively high resistivity and rugged physical characteristics comprising a mixture of a glass frit, an insulating material containing an oxide of zirconium, and a conductive phase of fine particles of tin oxide, the glass frit and insulating material being present in an amount up to about 70% by volume of the resistance material.

4,340,509

COMPOSITION, CONCENTRATE AND FOUNTAIN SOLUTION FOR LITHOGRAPHIC PRINTING OPERATIONS

Ralph D. Canale, Long Island City; Albert S. Canale, Massapequa, and Harry Papazian, Long Island City, all of N.Y., assignors to Michael A. Canale, Long Island City, N.Y., by said Harry Papazian

Continuation-in-part of Ser. No. 890,018, Mar. 24, 1978, Pat. No. 4,234,443. This application Apr. 16, 1980, Ser. No. 140,689 The portion of the term of this patent subsequent to Nov. 18, 1997, has been disclaimed.

Int. Cl.³ C11D *1/44, 3/075, 9/36*

U.S. Cl. 252—529 28 Claims

1. A composition adapted for use in a fountain solution which consists essentially of 2 to 66 percent by weight trisodium phosphate; 0.5 to 26.0 percent by weight sodium metasilicate; 2 to 67 percent by weight tetrapotassium pyrophosphate; 2 to 25 percent by weight of a nonionic detergent which is a condensation product of ethylene oxide with an akylamine, the alkyl moiety of which is of from 2 to 20 carbon atoms, the molar ratio of ethylene oxide units to each akylamine unit in said condensation product being of from 9:1 to 150:1, and 0.02 to 10.00 percent by weight dialkylpolysiloxane.

4,340,510

CONCRETE MIXTURES OR MORTAR MIXTURES OR CONCRETES OR MORTARS AND PROCESS FOR THEIR PRODUCTION

Friedrich Howanietz, Penzingerstrasse 20, A-1140 Vienna, and Alexander Kozlowski, Mariahilferstrasse 106/9, A-1070 Vienna, both of Austria

Filed Dec. 27, 1978, Ser. No. 973,663

Claims priority, application Austria, Dec. 30, 1977, 9436/77

Int. Cl.³ C08L *1/00*

U.S. Cl. 260—8 29 Claims

1. A concrete or mortar mixture or concrete or mortar on the basis of hydraulic binders and plastic materials for the production of building elements or coatings insensitive to shock and impact stress, abrasion, frost-thaw and defrosting salt and chemical attack as well as for effecting repair work on building elements or coatings, wherein lime or cement selected from the group consisting of Portland cement of conventional composition, iron Portland cement, blast furnace cement, flue ash Portland cement, Ciment compose, puzzolane cement, high-alumina cement, modified Portland cement on the basis of $11CaO.7Al_2O_3$. CaF_2, Brunauer cement, Grenoble cement and Roman cement and further at least one liquid-dispersed or dissolved plastic material consisting essentially of a polymer of an ethylemically unsaturated monomer, said plastic material having low-temperature adhesiveness and a T_{max} value of less than −8° C. determined according to DIN 53445 are contained.

4,340,511

PRODUCTION OF POLYMER MICROPARTICLES AND COATING COMPOSITIONS CONTAINING THEM

Alan J. Backhouse, South Ascot, and Auguste L. Palluel, Windsor, both of England, assignors to Imperial Chemical Industries Limited, London, England

Filed Jul. 2, 1979, Ser. No. 53,850

Claims priority, application United Kingdom, Jul. 19, 1978, 30356/78

Int. Cl.³ C08F *265/06;* C08G *81/00;* C08L *51/08, 61/28*

U.S. Cl. 524—504 11 Claims

1. A process for the production of crosslinked addition polymer microparticles, comprising the dispersion polymerisation of ethylenically unsaturated monomers in an aliphatic hydrocarbon liquid which is a solvent for the monomers but is a non-solvent for the polymer produced, in the presence of a dispersion stabiliser the molecule of which comprises at least one polymeric component which is solvated by the hydrocarbon liquid and at least one other component which is not solvated by the liquid and is capable of associating with the polymer produced, characterised in that (i) there is present in the hydrocarbon liquid a reactive amino resin which is a condensate of formaldehyde with an amine group-containing substance which has subsequently been etherified by reaction with a lower alcohol so as to convert at least a proportion of the $—NH.CH_2OH$ groups present into $—NH.CH_2OR$ groups, where R is an alkyl group containing from 1 to 4 carbon atoms, the said etherified condensate having a mineral spirit tolerance of less than 100 as measured according to ASTM D1198-73 and a molecular weight of less than 2000 and which is insoluble in the hydrocarbon liquid and (ii) at least one of the ethylenically unsaturated monomers carries a group which is capable of reacting with the amino resin, the polymerisation conditions being so chosen that during the polymerisation of the monomer or monomers the said group reacts with the amino resin so as to effect cross-linking of the addition polymer chains.

4,340,512

METHOD OF PROVIDING A UNIVERSAL COATING FOR FLUORESCENT LAMPS

Willy P. Schreurs, Danvers, Mass., assignor to North American Philips Corporation, New York, N.Y.

Filed Oct. 1, 1979, Ser. No. 80,853

Int. Cl.³ C08L *1/08*

U.S. Cl. 523—122 7 Claims

1. A method for preparing a universal water-base suspension for coating the interior surface of fluorescent lamps, said method comprising:

(a) preparing a temporary binder solution of polyoxyethylene in water at concentrations ranging from 1.5 to 2.5 weight by volume percent and removing the contaminating particulates of silica and Ca CO_3 by centrifuging;

(b) preparing a temporary binder solution of sodium carboxymethyl cellulose in water at concentrations ranging from 1.2 to 2.5 weight by volume percent;

(c) mixing said temporary binder solutions and removing the contaminating cations by an ion exchange process;

(d) neutralizing said purified temporary binder solution with ammonia to a pH 7.0 to 7.5 and adding between 0.01 and 0.02 weight by volume percent of bactericide;

(e) preparing an inorganic binder suspension of submicron size Al_2O_3 in water solution of low molecular weight polyacrylic acid neutralized to a pH 9.0 to 9.5 with monethanolamine, said suspension containing 0.5 to 1.5 weight by volume percent polyacrylic acid and 5 to 15 weight by volume percent of Al_2O_3; and

(f) mixing said temporary binder solution and inorganic binder suspension with phosphors and defoamer in such proportions as to contain a ratio of 0.5 to 1.5 weight percent of dry binder to phosphor and 0.02 to 0.1 weight percent of defoamer to phosphor.

4,340,513

POLYOLEFIN RESIN COMPOSITION

Tsutomu Moteki; Kunihiro Yamaguchi, both of Ichiharashi, and Yoshikazu Nakajima, Musashinoshi, all of Japan, assignors to Chisso Corporation, Osaka and Kabushiki Kaisha Mikuni Seisakusho, Tokyo, both of, Japan

Filed Jun. 3, 1980, Ser. No. 156,096

Claims priority, application Japan, Aug. 28, 1979, 54/109438

Int. Cl.³ C08L *1/02, 21/00, 53/00, 93/00*

U.S. Cl. 524—13 **6 Claims**

1. A molding resin composition comprising a blend of

(1) 0.3 to 4.0% by weight of a member selected from the group consisting of

(a) rosins and products derived from rosins,

(b) petroleum resins, and

(c) mixtures of (a) and (b),

(2) 0.5 to 4.0% by weight of a plasticizer,

(3) 15 to 60% by weight, on a dry basis, of finely ground vegetable fibers, and

(4) a blend of a polypropylene block copolymer and a high density polyethylene making up the remainder, all of the above percentages being based on the weight of said composition.

4,340,514

NON-TOXIC LIQUID STABILIZER FOR HALOGENATED HYDROCARBON RESINS AND PROCESS FOR STABILIZING SUCH RESINS

David S. Housel, Flemington, N.J., assignor to Interstab Chemicals Inc., New Brunswick, N.J.

Filed Jun. 29, 1981, Ser. No. 278,340

Int. Cl.³ C08L *93/00*; C09F *1/04*; C09K *15/32*

U.S. Cl. 524—77 **10 Claims**

1. A non-toxic liquid stabilizer comprising,

(a) from about 5 to about 35 percent of zinc resinate,

(b) from about 5 to about 35 percent of calcium resinate,

(c) from about 10 to about 40 percent of a non-toxic plasticizer,

(d) from about 1 to about 10 percent of a non-toxic antioxidant, and

(e) from about 25 to about 75 percent of a non-toxic phosphite,

said stabilizer containing from about 0.1 to about 3.5 percent zinc and from about 0.025 to about 2.28 percent calcium, all weight being based upon the total weight of the stabilizer.

5. A method for stabilizing a halogenated hydrocarbon resin comprising incorporating into said resin a non-toxic liquid stabilizer comprising,

(a) from about 5 to about 35 percent of zinc resinate,

(b) from about 5 to about 35 percent of calcium resinate,

(c) from about 10 to about 40 percent of a non-toxic plasticizer,

(d) from about 1 to about 10 percent of a non-toxic antioxidant, and

(e) from about 25 to about 75 percent of a non-toxic phosphite,

said stabilizer containing from about 0.1 to about 3.5 percent zinc and from about 0.025 to about 2.28 percent calcium, all weights being based upon the total weight of the stabilizer, said stabilizer being incorporated in a stabilizing amount from about 0.25 to about 4.0 weight percent based upon the weight of the resin.

4,340,515

SOLID RUBBER ADHESION PROMOTER AND A METHOD FOR IMPROVING THE ADHESION OF RUBBER TO METAL REINFORCING ELEMENTS EMBEDDED THEREIN

Karl-Heinz Frassek, Langerwehe, Fed. Rep. of Germany, and Willy J. van Ooij, Dieren, Netherlands, assignors to Akzo NV, Arnhem, Netherlands

Filed Jun. 16, 1981, Ser. No. 274,251

Int. Cl.³ C08L *7/00, 9/00*; C08F *1/04*; C08C *4/00*

U.S. Cl. 524—274 **9 Claims**

1. A solid rubber adhesion promoter composition comprising 20–90% by weight of cobalt naphthenate, nickel naphthenate or a mixture thereof and 10–80% by weight of cobalt resinate, nickel resinate or a mixture thereof.

9. A method for improving the adhesion of rubber to metal reinforcing elements embedded therein by incorporating into 100 parts of rubber prior to curing 0.2–10 parts of the solid promoter composition of claim 1.

4,340,516

COMPOUNDING MICA AND RESIN WITH HEAT SENSITIVE ADDITIVES

Allen J. Keeney, Saline, Mich., assignor to Ford Motor Company, Dearborn, Mich.

Continuation-in-part of Ser. No. 970,838, Dec. 18, 1978, abandoned. This application Dec. 13, 1979, Ser. No. 103,301

Int. Cl.³ C08L *91/06*

U.S. Cl. 523—216 **16 Claims**

1. A method of compounding in less than about 30 seconds at elevated temperatures mica and melt forming resin made from monomers comprising olefinic hydrocarbon monomers wherein the mica has a coating comprising a chlorinated hydrocarbon having about 65–80% by weight chlorine, which comprises:

(A) providing the resin, rendered molten by a first shear and having a melt index (ASTM D1238) below about 15, at a temperature in the range about 10°–60° F. below that temperature at which chlorine containing gas evolves from the chlorinated hydrocarbon coating, the resin being provided in first and second streams that are counter rotating with respect to one another and provide a turbulence therebetween;

(B) introducing the coated mica into the turbulence; and

(C) kneading the coated mica into the streams under a second shear, lower than the first shear, at a temperature below that temperature at which chlorine containing gas evolves from the chlorinated hydrocarbon.

4,340,517

POLYMER/BITUMINOUS MATERIAL BLENDS, PROCESS FOR MAKING ARTICLES FROM SUCH BLENDS AND ARTICLES MADE BY THE PROCESS

Alan C. G. Aldred, North Cheam, and Brian Weeks, Epsom, both of England, assignors to The British Petroleum Company Limited, London, England

Filed Dec. 15, 1980, Ser. No. 216,649

Claims priority, application United Kingdom, Dec. 19, 1979, 7943645

Int. Cl.³ C08L *95/00*

U.S. Cl. 524—59 **15 Claims**

1. A composition which is a blend of chlorosulphonated polyethylene and a bituminous material of softening point in excess of 80° C. and an asphaltene content in excess of 25% by weight, characterised in that it contains a thermoplastic olefin polymer having a softening temperature in the range 110° C. to 160° C., the quantity of thermoplastic being not more than 15%

by weight of the total weight of chlorine-containing synthetic elastomer present in the blend.

4,340,518

PROCESS FOR THE PRODUCTION OF A CATIONIC POLYCHLOROPRENE LATEX AND A MIXTURE OF THIS LATEX WITH BITUMEN EMULSION

Wilfried Nolte, Leverkusen, and Heinz Esser, Burscheid, both of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Continuation of Ser. No. 126,534, Mar. 3, 1980, abandoned. This application Jun. 18, 1981, Ser. No. 274,819

Claims priority, application Fed. Rep. of Germany, Mar. 7, 1979, 2908965

Int. Cl.³ C08L *91/00*

U.S. Cl. 524—61 **5 Claims**

1. In the process for producing a cationic polychloroprene latex by polymerizing chloroprene and from 0 to 50 parts by weight of a copolymerizable comonomer based on 100 parts by weight of total monomer, in aqueous emulsion in the presence of a carboxylic acid salt of a primary, secondary or teriary monoamine, polyamine or aminoamide as emulsifier, wherein said carboxylic acid is selected from the group consisting of mono-, di- or tricarboxylic acids containing from 1 to 6 carbon atoms, the improvement wherein the polymerization is carried out in the presence of at least one member selected from the group consisting of alkaline earth metal salts of organic carboxylic acids and alkali metal salts of organic carboxylic acids in an amount of from 0.2 to 5 parts by weight based on total monomer, wherein said organic carboxylic acids are selected from the group consisting of saturated mono-, di- or tricarboxylic acids with 1 to 6 carbon atoms or in the presence of a mixture of Na_2HPO_4 and KH_2PO_4 in a weight ratio of 1:5 to 5:1 and in an amount of from 0.5 to 2.0 parts by weight based on total monomer.

4,340,519

POLYESTER RESIN AQUEOUS DISPERSION

Nobukazu Kotera, Kyoto; Yutaka Mizumura, Shiga, and Hideo Miyake, Otsu, all of Japan, assignors to Toyo Boseki Kabushiki Kaisha, Osaka, Japan

Filed Dec. 18, 1980, Ser. No. 217,629

Claims priority, application Japan, Dec. 21, 1979, 54-167002

Int. Cl.³ C08L *67/02, 81/08*

U.S. Cl. 523—414 **10 Claims**

1. An aqueous dispersion of polyester resin which comprises

(A) a crystalline polyester having a molecular weight of 2,500 to 30,000 and a melting point of 70° to 200° C. and, comprising polycarboxylic acid components consisting of 40 to 99.5% by mole of an aromatic dicarboxylic acid having no metal sulfonate group, 59.5 to 0% by mole of an aliphatic or alicyclic dicarboxylic acid having 4 to 36 carbon atoms and 0.5 to 10% by mole of an aromatic dicarboxylic acid having a metal sulfonate group, and polyol components consisting of 20 to 100% by mole of an aliphatic glycol having 2 to 8 carbon atoms and/or an alicyclic glycol having 6 to 12 carbon atoms and 80 to 0% by mole of bisphenol A ethylene oxide or propylene oxide adduct,

(B) a non-crystalline polyester having a molecular weight of 2,500 to 30,000 and a softening point of 60° to 180° C. and comprising polycarboxylic acid components consisting of 40 to 99.5% by mole of an aromatic dicarboxylic acid having no metal sulfonate group, 59.5 to 0% by mole of an aliphatic or alicyclic dicarboxylic acid having 4 to 36 carbon atoms and 0.5 to 10% by mole of an aromatic dicarboxylic acid having a metal sulfonate group, and polyol components consisting of 20 to 100% by mole of an aliphatic glycol having 2 to 8 carbon atoms and/or an alicyclic glycol having 6 to 12 carbon atoms and 80 to 0% by mole of bisphenol A ethylene oxide or propylene oxide adduct,

(C) a water-soluble organic compound having a boiling point of 60° to 200° C., and

(D) water, said components (A), (B), (C), and (D) being incorporated in the following weight ratio:

$$A/B=0-95/100-5 \quad (1)$$

$$A+B/C/D=10-70/2-40/20-88 \quad (2)$$

$$0.02 \leqq C/C+D \leqq 0.66. \quad (3)$$

4,340,520

POLYESTER AMINOORGANOSILANE SALT/POLYALKYLENE OXIDE COMPOSITIONS FOR IMPROVED GLASS FIBER TREATMENT

James G. Marsden, and Enrico J. Pepe, both of Amawalk, N.Y., assignors to Union Carbide Corporation, Danbury, Conn.

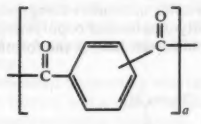
Continuation-in-part of Ser. No. 163,628, Jun. 27, 1980, abandoned. This application Jan. 21, 1981, Ser. No. 226,551

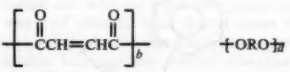
Int. Cl.³ C08G *63/54;* C08K *3/40;* C08L *67/06*

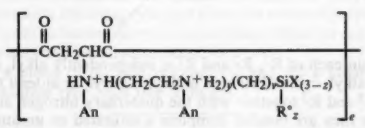
U.S. Cl. 523—209 **10 Claims**

1. A composition suitable for use in the treatment of glass fibers which comprises

a polyester polymer having a molecular weight of greater than 1000 and comprising units of the formulae







wherein R is a divalent hydrocarbon radical, R° is an alkyl, aryl, or aralkyl group, X is alkoxy, hydroxy, or divalent oxygen, y is 0 or 1, v is an integer of from 1 to 6, z is 2, 1, or 0, a is 0 or a mole fraction of from 0.004 to 0.6, b and e are mole fractions ranging from about 0.004 to about 0.6, and d is a mole fraction ranging from 0.4 to 0.6, with the proviso that d is greater than, equal to, or slightly less than the sum of a, b, and e, and An is anion of a monovalent acid, and

from 10 weight % to 100 weight %, based upon the weight of said polyester polymer in the composition, of a polyalkylene oxide polymer of the formula

$$EO[CH_2CH_2O]_m[CH(CH_3)CH_2O]_nH$$

wherein E is hydrogen or an alkyl end-blocking group having up to 8 carbon atoms, m ranges from 0 to 50, n ranges from 0 to 20, and m+n must total at least 3.

4,340,521

PRESSURE COMPACTING OF SETTABLE PLASTER COMPOSITIONS

Michel Deleuil, Lyons, France, assignor to Rhone-Poulenc Industries, Paris, France

Continuation-in-part of Ser. No. 88,588, Oct. 26, 1979, abandoned, which is a continuation of Ser. No. 876,492, Feb. 9, 1978, abandoned. This application Oct. 23, 1980, Ser. No. 200,084

Claims priority, application France, Feb. 9, 1977, 77 03561; Apr. 4, 1977, 77 10060; Jul. 6, 1977, 77 20773

Int. Cl.³ C08L *61/24;* C04B *11/14*

U.S. Cl. 524—2 **14 Claims**

1. A settable molding composition, which comprises a mix of a synthetic plaster having a Blaine surface area in the range from about 2,500 to about 7,000 cm^2/g and a water donor therefor selected from the group consisting of synthetic gypsum having a given content of water and a mixture of said synthetic gypsum and free water, said plaster comprising from about 30% to about 99% by weight of the mix and the amount of free available water in the mix from the water donor being in excess of that amount stoichiometrically required for ultimate complete setting of the mix, with said excess of free available water comprising between 0 and 15% by weight of the total weight of said mix.

4,340,522

PROCESS FOR PREPARING CATIONIC POLYMERS

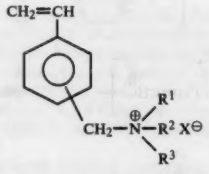
Irena Y. Bronstein-Bonte, Newton, and Edward P. Lindholm, Boston, both of Mass., assignors to Polaroid Corporation, Cambridge, Mass.

Filed Apr. 22, 1980, Ser. No. 142,637

Int. Cl.³ C08L *39/08*

U.S. Cl. 524—766 **24 Claims**

1. A process which comprises: forming a solution, in a solvent medium comprising water and a lower alcohol, of a mixture of copolymerizable monomers comprising a vinylpyridine and an ethylenically-unsaturated copolymerizable vinylbenzyl quaternary ammonium salt having the formula:



wherein each of R^1, R^2 and R^3 is independently alkyl; substituted alkyl; cycloalkyl; aryl; aralkyl; alkaryl; or at least two of R^1, R^2 and R^3 together with the quaternary nitrogen atom to which they are bonded complete a saturated or unsaturated, substituted or unsubstituted nitrogen-containing heterocyclic ring; and X is an anion; and polymerizing said mixture of copolymerizable monomers in said solvent medium, thereby to form a solution of a copolymer of said copolymerizable monomers in said solvent medium.

4,340,523

ELECTROCOATING COMPOSITION WITH POLYHYDROXYAMINE AND EPOXY

Isidor Hazan, Clementon, N.J., assignor to E. I. DuPont de Nemours and Company, Wilmington, Del.

Continuation-in-part of Ser. No. 106,258, Dec. 21, 1979, abandoned. This application Dec. 29, 1980, Ser. No. 220,957

Int. Cl.³ G08L *29/00, 39/00*

U.S. Cl. 524—504 **14 Claims**

1. An aqueous cathodic electrodeposition coating composition comprising a dispersion of a first polymer, a second polymer, enough of an organic acid to give the composition a pH about in the range of 6 to 7, and optionally a nitrogen resin crosslinker, said coating composition containing, by weight based on the first and second polymers, about 20–70% of a first polymer which is a copolymer comprising a backbone and a graft pendent to the backbone, said backbone containing amine functional groups and hydroxy functional groups, characterized in that said backbone contains at least about 0.13 equivalent of amine groups per 100 grams of first polymer and at least about 0.03 equivalent of hydroxyl groups per 100 grams of first polymer, and containing, by weight, the equivalent of about:

(a) 35–90% amine functional monomers,

(b) 10–60% hydroxy functional monomers,

(c) 0–40% nonfunctional acrylic or methacrylix monomers, and

(d) 0–5% chain-terminating monomers

the total of (a), (b), (c) and (d) being 100% of said backbone,

said graft comprising a monoglycidyl ester of at least one tertiary carboxylic acid containing 9–20 carbon atoms and being grafted to said amine groups in said backbone, said copolymer containing about 1–30% by weight of said graft, and, by weight based on the first and second polymers, about 80–30% of a second polymer which is an epoxy resin reacted with, based on the weight of said second polymer, about 80–150% of an entity selected from the group consisting of alkyl phenols, alkyl alcohols and alkyl hydroxy ethers, with 1–20 carbon atoms in the alkyl groups, hydroxyamines, fatty amines and mercaptans.

4,340,524

WATER-RESISTANT LATEX SEALANTS

Allan R. Bullman, Bernardsville, N.J., assignor to Union Carbide Corporation, Danbury, Conn.

Filed Jun. 30, 1980, Ser. No. 163,955

Int. Cl.³ C08L *33/08*

U.S. Cl. 524—297 **14 Claims**

1. In an acrylic resin latex based sealant composition, the improvement which comprises introducing about 0.1 to about 10 weight % of an hydrophobic resin dissolved in about 2 to about 20 weight % of a liquid organic, non-coagulating, non-gelling solvent into said acrylic resin latex together with an aqueous solution of about 0.5 to about 5.0 weight % of an hydrolyzed organoaminosilane containing sufficient base to maintain a pH of at least 8.5, with the proviso that the total weight of the components including the acrylic latex equals 100%.

4,340,525

ADDITIVE FOR DEEP-WELL CEMENT SLURRIES

Wolfgang Hübner, Kempen; Otto Schroers, and Hans J. Sladeck, both of Krefeld, all of Fed. Rep. of Germany, assignors to Chemische Fabrik Stockhausen & Cie, Krefeld, Fed. Rep. of Germany

Continuation of Ser. No. 56,490, Jul. 11, 1979, abandoned. This application Mar. 19, 1981, Ser. No. 245,475

Claims priority, application Fed. Rep. of Germany, Jul. 12, 1978, 2830528

Int. Cl.³ C04B *7/35*

U.S. Cl. 252—8.55 B **13 Claims**

1. In the cementing of a deep-well employing a deep-well cement slurry, the improvement which comprises including in such cement or cement slurry an additive comprising a water-soluble anionic copolymer having a molecular weight from 50,000 to 500,000 and comprising 1 to 60 mole% of anionic structural units and 99 to 40 mole% of non-ionic structural units, the copolymer having been obtained by radical polymerization of a substantially neutral solution of the monomers.

4,340,526

POLYESTER ADHESIVE

Frederick D. Petke, and Richard L. McConnell, both of Kingsport, Tenn., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Dec. 29, 1980, Ser. No. 220,407

Int. Cl.³ C08K *5/10*

U.S. Cl. 524—292 **8 Claims**

1. Composition comprising

(a) about 65.0–90% by weight of a polymer selected from the group consisting of (1) copolyesters derived from terephthalic acid, isophthalic acid, 1,4-butanediol and 1,6-hexanediol and (2) copolyesters derived from a major portion of cyclohexanedicarboxylic acid and a minor portion of dimer acid, and 1,4-cyclohexanedimethanol, said copolyester having an inherent viscosity of about 0.45–1.2, a melting point of from about 70° C. to about 200° C. and a heat of fusion of from about 0.1 to about 12.0 calories per gram, and

(b) about 10–35.0% by weight of a monomeric ester selected from the group consisting of glyceryl tribenzoate, neopentyl dibenzoate, triethylene glycol dibenzoate and dioctyl phthalate.

4,340,527

CHLORINE-RESISTANT SPANDEX FIBERS

Kenneth E. Martin, Waynesboro, Va., assignor to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Continuation-in-part of Ser. No. 161,606, Jun. 20, 1980, abandoned. This application Aug. 14, 1981, Ser. No. 292,965

Int. Cl.³ C08K *3/22*

U.S. Cl. 524—432 **5 Claims**

1. In a spandex fiber, the improvement comprising, for increasing the resistance of the fiber to chlorine-induced degradation, an effective amount of finely divided zinc oxide having a purity of at least 99.4% dispersed in the fiber.

4,340,528

PIGMENTED POLYOLEFIN COMPOSITIONS

Harold P. Marsh, Kingsport, Tenn., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed Oct. 31, 1980, Ser. No. 202,402

The portion of the term of this patent subsequent to Jul. 27, 1999, has been disclaimed.

Int. Cl.³ C08L *67/00*

U.S. Cl. 524—513 **7 Claims**

1. Polyolefin composition comprising polyethylene or polypropylene having a density of between about 0.90 and about 0.98, at least one pigment in an amount sufficient to provide color to said polyolefin, and from about 0.1 to about 4.0%, based on the weight of said polyolefin, of a polyester having an I.V. of from about 0.6 to about 1.0, a melting point of from about 90° to about 150° C. and a melt index of from about 10 to about 100.

4,340,529

NO-MIX ORTHODONTIC ADHESIVE FORMULATIONS

Henry L. Lee, Jr., Pasadena, and Giovanni Nolet, Westminster, both of Calif., assignors to Lee Pharmaceuticals, Inc., South El Monte, Calif.

Filed Apr. 11, 1980, Ser. No. 139,270

Int. Cl.³ A61K *5/00*

U.S. Cl. 524—105 **25 Claims**

1. An orthodontic adhesive composition that becomes reactive and set when a layer of one component is placed in contact with a layer of the other component, comprising:

(a) a first component having a viscosity in the range of about 800 cps to about 50,000 cps at 23° C. comprising a liquid resin binder consisting of, in percentages by weight of the binder, at least 30% of a monofunctional ethylenically unsaturated monomer comprising methoxyethyl methacrylate, and optionally, as additional monomer in the binder, a polyfunctional carboxylate selected from the group consisting of aromatic diacrylates, aromatic dimethacrylates, polyalkylene glycol diacrylates, polyalkylene glycol dimethacrylates, and mixtures thereof, and

(b) a second component having a viscosity greater than about 100,000 cps at 23° C. comprising a liquid resin binder and a filler, the binder comprising from about 10% to about 70% by weight of the second component and consisting of one or more poly-ethylenically unsaturated monomers that can copolymerize with the monomer present in the component (a) binder upon curing, to form cross-linked polymer;

one of said components containing an effective amount of a polymerization accelerator and the other of said components containing an effective amount of a polymerization initiator, said accelerator and initiator being effective upon contact of layers of the two components that have been separably applied to cause curing to occur.

4,340,530

VINYL CHLORIDE TYPE RESIN COMPOSITION

Takeichi Higashiguchi, Tenri; Masasuke Fukuoka, Osaka; Tomoyuki Emura, and Yasuhiro Moriuchi, both of Nihama, all of Japan, assignors to Sumitomo Bakelite Company Limited and Sumitomo Chemical Company Limited, both of, Japan

Continuation of Ser. No. 966,721, Dec. 5, 1978, abandoned. This application Jul. 2, 1980, Ser. No. 165,329

Claims priority, application Japan, Dec. 8, 1977, 52-146637; Mar. 6, 1978, 53-24539; May 22, 1978, 53-59989; May 22, 1978, 53-59990; May 22, 1978, 53-59991

Int. Cl.³ C08K *5/52*

U.S. Cl. 524—515 **14 Claims**

1. A vinyl chloride resin composition consisting essentially of 100 parts by weight of a vinyl chloride resin and 25 to 200 parts by weight of a plasticizer, said vinyl chloride resin being composed of 28 to 90% by weight of tetrahydrofuran-insoluble gel fraction and the remainder of tetrahydrofuran-soluble fraction, and being

(1) a polymer obtained by reacting vinyl chloride monomer or a mixture thereof and a minor amount of at least one monomer copolymerizable therewith, with a polyfunctional compound selected from the group consisting of diallyl esters of phthalic acid, diallyl esters of ethylenically unsaturated dibasic acids, diallyl ethers, triallyl cyanurate, triallyl isocyanurate, triallyl trimellitate, divinyl ethers, dimethacrylic and diacrylic esters of polyhydric alcohols, trimethacrylic and triacrylic esters of polyhydric alcohols, bismethacryloyloxyethylene phthalate and 1,3,5-triacryloyl hexahydrotriazine, or

(2) a blend of (a) said polymer (1) and (b) a usual vinyl chloride type resin free from gel.

4,340,531

AQUEOUS-MEDIA DISPERSIBLE, HIGHLY-CONCENTRATED, FINELY-DISPERSE, LOW-DISPERSANT OR FREE-OF-DISPERSANT PREPARATION OF HARDLY WATER-SOLUBLE TO WATER-INSOLUBLE ACTIVE SUBSTANCES IN SOLID FORM, PROCESS FOR THEIR PREPARATION AND THEIR APPLICATION

Jacques Wegmann, Bettingen, Switzerland, assignor to Rohner AG Pratteln, Pratteln, Switzerland

Filed Feb. 1, 1980, Ser. No. 117,800

Claims priority, application Switzerland, Feb. 2, 1979, 1057/79

Int. Cl.³ C08K *5/00*

U.S. Cl. 524—556 **7 Claims**

1. A process for making a preparation of active substances, hardly soluble or insoluble in water and in the form of powders or granules, said preparation being dispersible in an aqueous media, comprising:

(a) 40 to 90% by weight of at least one active substance only

slightly soluble or insoluble in water with an average particle size less than 5 microns; and

(b) 10 to 60% by weight of at least one water-soluble ammonium or volatile amine salt selected from the group consisting of a salt of a water-insoluble maleinate resin, a salt of a water-insoluble polymer containing maleic acid units and a salt of a water-insoluble polymer containing maleic acid derivative units;

said process for making comprising the step of exposing a mixture of said active substance and at least one water-insoluble compound selected from the group consisting of a maleinate resin, a polymer containing maleic acid units and a polymer containing maleic acid derivative units to the vapors of ammonia or volatile amines to convert said water-insoluble compound into said water-soluble ammonium or volatile amine salt of the compound.

4,340,532
ADHESIVE COMPOSITIONS CONTAINING ALKOXY ALKYL ACRYLATES OR METHACRYLATES

Henry L. Lee, Jr., Pasadena, and Giovanni Nolet, Westminster, both of Calif., assignors to Lee Pharmaceuticals, Inc., South El Monte, Calif.

Filed Apr. 11, 1980, Ser. No. 139,360

Int. Cl.[3] **C08K** *3/40;* **C08F** *220/20;* **A61K** *5/06*

U.S. Cl. 524—854 **25 Claims**

1. In an adhesive composition comprising a curable liquid resin binder and effective amounts of polymerization initiator and accelerator, respectively, the improvement comprising:

a curable liquid resin binder comprising, in percentage by weight based on the resin binder:

from about 1% to about 60% of (A) a lower alkoxy alkyl methacrylate comprising methoxyethyl methacrylate, and

from about 40% to about 99% of (B) a polyunsaturated, copolymerizable agent selected from the group consisting of aliphatic diacrylates and dimethacrylates, aromatic diacrylates and dimethacrylates, and mixtures thereof, and

from 0% to about 80% of the total adhesive composition of a finely divided filler selected from the group consisting of finely divided inorganic fillers, finely divided organic fillers, and mixtures thereof.

4,340,533
NOVEL STABILIZERS

Jean Rody, Riehen, Switzerland, assignor to Ciba-Geigy Corporation, Ardsley, N.Y.

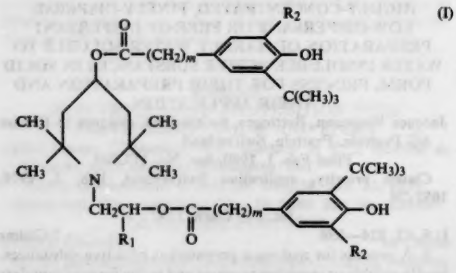
Continuation of Ser. No. 50,572, Jun. 21, 1979, abandoned. This application Sep. 29, 1980, Ser. No. 191,721

Claims priority, application United Kingdom, Jul. 3, 1978, 28653/78

Int. Cl.[3] **C07D** *211/50;* **C08K** *5/34*

U.S. Cl. 524—99 **3 Claims**

1. 2,2,6,6-Tetramethylpiperidine derivatives having the formula



(I)

wherein m is 0, 1 or 2, R_1 is hydrogen, methyl, ethyl, phenoxymethyl or phenyl, and R_2 is C_1–C_8 alkyl.

3. Stabilized synthetic polymer compositions containing a 2,2,6,6-tetramethylpiperidine derivative as defined in claim 1 or 2.

4,340,534
ETHERS BASED ON POLYALKYL-1-OXADIAZASPIRODECANES

Hartmut Wiezer, Gersthofen, and Gerhard Pfahler, Augsburg, both of Fed. Rep. of Germany, assignors to Hoechst Aktiengesellschaft, Fed. Rep. of Germany

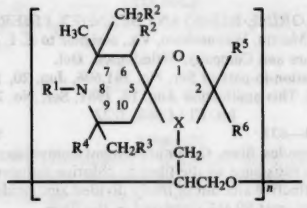
Filed Oct. 6, 1980, Ser. No. 194,140

Claims priority, application Fed. Rep. of Germany, Oct. 10, 1979, 2941004

Int. Cl.[3] **C08G** *65/22;* **C08K** *5/35;* **C07D** *471/10;* **C08L** *23/12*

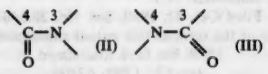
U.S. Cl. 524—99 **13 Claims**

1. An ether or epoxide, containing polyalkylpiperidine groups, of the formula (I)

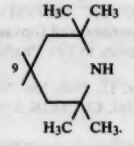


(I)

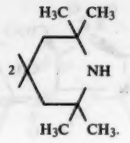
in which n is an integer from 1 to 50, when n equals 1, an oxirane ring being completed via the free bonds, X denotes a group of the formula (II) or (III)



wherein the indices 3 and 4 indicate the ring positions in the diazaspirodecane system and one bond of the nitrogen is attached to the CH_2 group of the ether radial, R^1 is hydrogen, oxygen or C_1- to C_{12}-alkyl, R^2 and R^3 are either identical and denote hydrogen or a C_1- to C_5-alkyl group, in which case R^4 is a methyl group, or R^2 is hydrogen or C_1- to C_5-alkyl and R^3 and R^4, conjointly with the carbon atoms to which they are linked, represent a C_5- or C_6-cycloalkyl group or a group of the formula



R^5 and R^6 are identical or different and represent hydrogen, C_1- to C_{30}-alkyl, a phenyl or naphthyl grop which is unsubstituted or substituted by chlorine or C_1- to C_4-alkyl, or a C_7- to C_{12}-phenylalkyl group which is unsubstituted or substituted by C_1- to C_4-alkyl, or R^5 and R^6, conjointly with the carbon atom which is linked to them, denote a C_5- to C_{18}-cycloalkyl group which is unsubstituted or substituted by up to four C_1- to C_4-alkyl groups, or denote a group of the formula



4,340,535

CYTOTOXIC PRODUCTS FORMED BY COVALENT BONDING OF THE A CHAIN OF RICIN WITH AN ANTIBODY AND THE PROCESS FOR THEIR PREPARATION AND USE

Guy Voisin, Paris; Franz Jansen, Saint Gely Du Fesc, and Pierre Gros, Montpellier, all of France, assignors to C M Industries, Paris, France

Filed Sep. 27, 1979, Ser. No. 79,441
Claims priority, application France, Sep. 28, 1978, 78 27838
Int. Cl.[3] A61K *39/44;* C07G *7/00*
U.S. Cl. 260—112 B 14 Claims

1. Process for the preparation of a cytotoxic product having a covalent disulphide bond between a cytotoxic compound and an antibody, the process comprising forming a disulphide bridge between the A chain of ricin and the antibody, the antibody being an immunoglobulin or an immunoglobulin fragment and being specific for a given antigen carried by the cells which are to be destroyed.

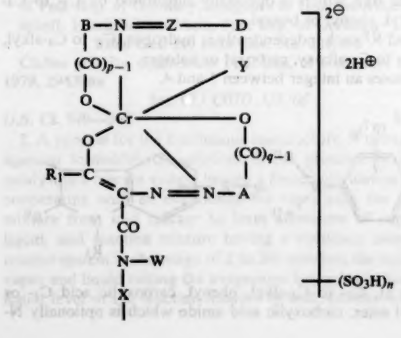
4,340,536

CHROME-COMPLEX DYES AND THE PRODUCTION AND USE THEREOF

Fabio Beffa, Riehen, Switzerland, assignor to Ciba-Geigy Corporation, Ardsley, N.Y.

Filed May 14, 1980, Ser. No. 149,605
Claims priority, application Switzerland, May 23, 1979, 4839/79; Apr. 28, 1980, 3265/80
Int. Cl.[3] C09B *45/48, 56/04*
U.S. Cl. 260—145 A 10 Claims

1. A chrome-complex dye which, in the form of the free acid, corresponds to the formula



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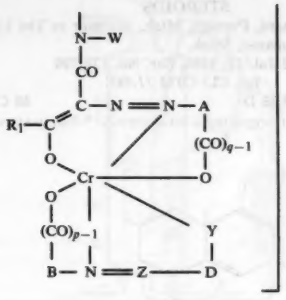


wherein X is a direct bond or the radical of an aliphatic or aromatic diamine, W is hydrogen or a lower alkyl group, or the two W's taken together are an aliphatic bridge having 2 C atoms, each R_1 is a low-molecular alkyl group, an aryl group or the CN—CH_2 group, the A's independently of one another are each a radical of the benzene or naphthalene series, the B's independently of one another are each a radical of the benzene or naphthalene series, the Z's independently of one another are each a nitrogen atom or a CH group, the p's independently of one another are each 1 or 2, the q's independently of one another are each 1 or 2, the Y's independently of one another are each an oxygen atom or a group of the formula —NR—, wherein R is hydrogen or low-molecular alkyl, and when Z is a CH group, Y has to be an oxygen atom and the D's independently of one another are each the radical of an o-hydroxyaldehyde, or, when Z is a nitrogen atom, they are each the radical of a coupling component coupling in the o-position with respect to Y, and n is an integer from 1 to 8 inclusive.

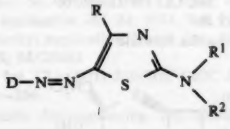
4,340,537

MONOAZO DYES OF THE THIAZOLE SERIES HAVING A HETEROCYCLIC SUBSTITUENT IN THE 4-POSITION

Heinz Eilingsfeld, Frankenthal; Guenter Hansen, and Guenther Seybold, both of Ludwigshafen, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Fed. Rep. of Germany

Filed Feb. 26, 1980, Ser. No. 124,740
Claims priority, application Fed. Rep. of Germany, Mar. 20, 1979, 2910806
Int. Cl.[3] C07C *107/04;* C09B *29/36*
U.S. Cl. 260—158 3 Claims

1. A monoazo dye of the thiazole series, having the general formula I



I

where

D is the radical of an aromatic diazo component,

R is a heterocyclic radical and

R^1 and R^2 are hydrogen or unsubstituted or substituted hydrocarbon radicals, which may also together form a ring, which may or may not be heterocyclic.

4,340,538

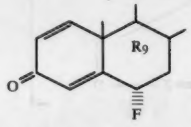
PROCESS FOR PRODUCING 6α-FLUORO-$\Delta^{1,4}$-3-KETO STEROIDS

Kenneth P. Shephard, Portage, Mich., assignor to The Upjohn Company, Kalamazoo, Mich.

Filed Jul. 21, 1980, Ser. No. 170,790
Int. Cl.³ C07J *71/00*
U.S. Cl. 260—239.55 D **46 Claims**

1. A process for preparing a 6α-fluoro-$\Delta^{1,4}$-3-keto steroid of the formula

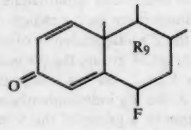
(VI)



which comprises

(1) deconjugating a 6β-fluoro-$\Delta^{1,4}$-3-keto steroid of the formula

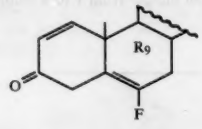
(IV)



by reaction with a deconjugating agent,

(2) quenching with a quenching agent to produce a 6-fluoro-$\Delta^{1,5}$-3-keto steroid of the formula

(V)



(3) isolating the 6-fluoro-$\Delta^{1,5}$-3-keto steroid (V)

(4) isomerizing the 6-fluoro-$\Delta^{1,5}$-3-keto steroid (V) by reaction with an isomerizing agent and

(5) neutralizing with an acid where R_g and are defined in the specification.

38. A process according to claim **1** where in the C ring is a 9β,11β-epoxide or a $\Delta^{9(11)}$-double bond.

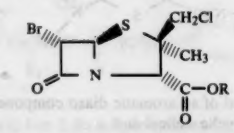
4,340,539

DERIVATIVES OF 6-BROMO PENICILLANIC ACID

William J. Gottstein, Fayetteville, N.Y., assignor to Bristol-Myers Company, New York, N.Y.

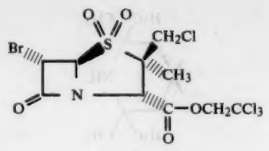
Continuation-in-part of Ser. No. 113,894, Jan. 21, 1980, abandoned. This application Dec. 11, 1980, Ser. No. 214,833
Int. Cl.³ C07D *499/00*
U.S. Cl. 260—245.2 R **6 Claims**

1. An ester having the formula



wherein R is benzyl or p-nitrobenzyl.

6. **The ester having the formula**



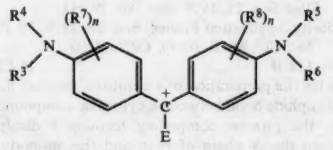
4,340,540

PREPARATION OF BASIC TRIARYLMETHANE DYESTUFFS

Karl H. Hermann, Leverkusen, Fed. Rep. of Germany, assignor to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Filed Jun. 26, 1980, Ser. No. 163,364
Claims priority, application Fed. Rep. of Germany, Jul. 13, 1979, 2928404
Int. Cl.³ C07D *209/04*; C09B *11/10*
U.S. Cl. 548—440 **3 Claims**

1. In the preparation of a basic dyestuff of the formula



in which

R^3 and R^5 each independently is hydrogen, C_1- to C_4-alkyl, hydroxyalkyl with two or three C atoms, cyanoethyl, alkoxyalkyl with a total of three to five C atoms, alkoxycarbonylalkyl with a total of three to eight C atoms, alkylcarbonyloxyalkyl with a total of three to eight C atoms, C_1- to C_4-halogenoalkyl, sulphoalkyl with two to four C atoms, cyclohexyl, benzyl, phenyl, phenethyl, phenyl which is substituted by halogen or C_1- to C_4-alkyl or -alkoxy, or sulphobenzyl,

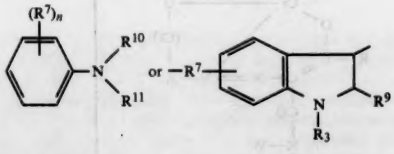
R^4 and R^6 each independently is C_1- to C_4-alkyl, hydroxyalkyl with two or three C atoms, cyanoethyl, C_1- to C_4-halogenoalkyl, alkoxyalkyl with a total of three to five C atoms, alkoxycarbonylalkyl with a total of three to eight C atoms, alkylcarbonyloxyalkyl with a total of three to eight C atoms or benzyl, or

R^3 and R^4 and/or R^5 and R^6 together form a pyrrolidine, morpholine or piperazine ring which is optionally substituted by C_1- to C_4-alkyl, or

R^3, R^4, R^5 and/or R^6, together with the ortho position of the phenyl ring, form a tetrahydroquinoline, indoline, tulolidine, phenmorpholine, tetrahydroquinoxaline or carbazole ring which is optionally substituted by C_1- to C_4-alkyl, phenyl or benzyl,

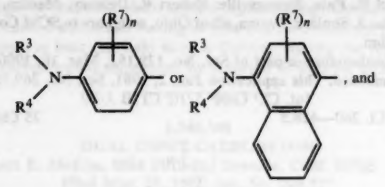
R^7 and R^8 each independently is hydrogen, C_1- to C_4-alkyl, C_1- to C_4-alkoxy, carboxyl or halogen,

n denotes an integer between 1 and 4,



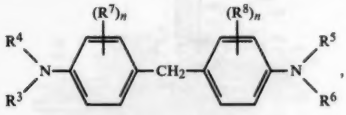
R^9 is H, C_1- to C_4-alkyl, phenyl, carboxylic acid C_1- or C_2-alkyl ester, carboxylic acid amide which is optionally N-

substituted by C_1- to C_4-alkyl, or C_1- to C_4-alkoxy or a radical of the formula



R^{10} and R^{11} each independently is methyl, ethyl or hydroxyethyl,

the steps comprising oxidizing a compound of the formula



in the presence of a nucleophilic compound of the formula

E—H,

in the presence of quinone oxidizing agent with a catalyst comprising nitrogen oxide or compound forming it selected from the group consisting of nitrogen monoxide, nitrogen dioxide, sodium nitrite or iron-III nitrate.

4,340,541

4-(2-BENZOYLOXY-3-TERT.-BUTYLAMINOPROPOXY-2-METHYL INDOLE

Franz Troxler, Bottmingen, and Fritz Seemann, Ettingen, both of Switzerland, assignors to Sandoz Ltd., Basel, Switzerland

Continuation of Ser. No. 34,582, Apr. 30, 1979, abandoned, which is a continuation of Ser. No. 711,906, Aug. 5, 1976, abandoned. This application Apr. 10, 1980, Ser. No. 138,901

Claims priority, application Switzerland, Aug. 15, 1975, 10714/75; Sep. 23, 1975, 12335/75; Jul. 2, 1976, 8497/76

Int. Cl.[3] **C07D** *209/08;* **A61K** *31/40*

U.S. Cl. 548—503 **2 Claims**

1. A compound which is 4-(2-benzoyloxy-3-tert.butylaminopropoxy)-2-methyl-indole.

4,340,542

PROCESS AND EQUIPMENT FOR THE CONTINUOUS MANUFACTURE OF TRIOXAN

Helmüt Bär, Offenbach am Main; Herbert Mader, Nauheim; Karl-Friedrich Mück, and Paül Zorner, both of Wiesbaden, all of Fed. Rep. of Germany, assignors to Hoechst Aktiengesellschaft, Frankfurt am Main, Fed. Rep. of Germany

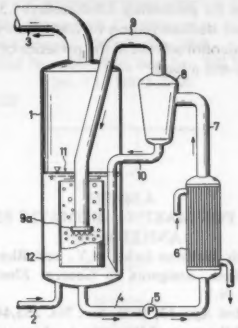
Filed Oct. 29, 1980, Ser. No. 201,751

Claims priority, application Fed. Rep. of Germany, Oct. 31, 1979, 2943984

Int. Cl.[3] **C07D** *323/06*

U.S. Cl. 549—368 **3 Claims**

1. A process for the continuous manufacture of trioxan from aqueous formaldehyde solutions in the presence of an acid catalyst in a reactor system having a forced circulation reactor cooperating with an evaporator for vaporizing the reaction mixture from said reactor to form a mixture of vapor and liquid, said reaction mixture having a residence time in the reactor system in the range of 2 to 240 minutes, the mixture of vapor and liquid exiting the evaporator being fed in below the liquid level of the reaction mixture in said reactor, the vapor from the synthesis existing said reactor, which comprises separating the vapor and liquid mixture exiting said evaporator into



respective vapor and liquid streams and separately feeding said respective vapor and liquid streams to the reactor.

4,340,543

SULFONIUM COMPOUNDS

Akihide Koda; Mikio Hori, both of Gifu; Mitsugi Yasumoto, Tokushima; Ichiro Yamawaki, Tokushima; Yuji Yamada, Tokushima, and Katsuo Takikawa, Naruto, all of Japan, assignors to Taiho Pharmaceutical Company Limited, Tokyo, Japan

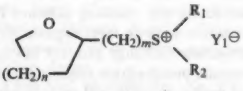
Filed Feb. 3, 1981, Ser. No. 231,126

Claims priority, application Japan, Feb. 15, 1980, 55-18385

Int. Cl.[3] **C07D** *309/04, 307/10;* **A61K** *31/35, 31/34*

U.S. Cl. 549—414 **9 Claims**

1. A sulfonium compound represented by the formula



(I)

wherein R_1 and R_2 are each alkyl, cycloalkyl, cyclopropylmethyl, alkylene-2-tetrahydrofuranyl, alkylene-2-tetrahydropyranyl, alkenyl, phenyl which may be substituted with alkyl, alkoxy or halogen, aralkyl which may be substituted with alkyl, alkoxy or halogen on the benzene ring, or benzoyloxyethyl, Y_1 is halogen, or an inorganic acid residue or organic acid residue, n is 1 or 2, and m is an integer of 1 to 15.

4,340,544

PROCESS FOR PRODUCING 2-(2'-METHYL-1'-PROPENYL)-4-METHYLTETRAHYDROPYRAN

Gohu Suzukamo, Ibaraki; Tetsuo Takano, Takatsuki; Mitsuhisa Tamura, Ibaraki, and Kiyoshi Ikimi, Kyoto, all of Japan, assignors to Sumitomo Chemical Company, Limited, Osaka, Japan

Division of Ser. No. 158,810, Jun. 12, 1980, Pat. No. 4,312,717. This application Jul. 31, 1981, Ser. No. 289,071

Claims priority, application Japan, Jun. 19, 1979, 54/77919; Jun. 20, 1979, 54/78602

Int. Cl.[3] **C07D** *309/303;* **C07C** *33/02*

U.S. Cl. 549—356 **12 Claims**

1. A process for producing 2-(2'-methyl-1'-propenyl)-4-methyltetrahydropyran which comprises the steps of anodic alkoxylation of citronellol in an alcohol in the presence of an alkali metal aromatic sulfonate as a supporting electrolyte, dealkoxylation of 2,6-dimethyl-3-alkoxyoct-1-en-8-ol in an alcohol solvent in the presence of a palladium or nickel complex and a base to obtain 2,6-dimethyl-1,3-octadien-8-ol, and

cyclization of the 2,6-dimethyl-1,3-octadien-8-ol in the presence of an acid.

12. A process for producing 2,6-dimethyl-1,3-octadien-8-ol, which comprises dealkoxylation of 2,6-dimethyl-3-alkoxyoct-1-en-8-ol in an alcohol solvent in the presence of a palladium or nickel complex and a base.

4,340,545

METHOD FOR MAKING AROMATIC BIS(ETHER ANHYDRIDES)

Jimmy L. Webb, Ballston Lake, N.Y., and Bharat M. Mehta, Pittsfield, Mass., assignors to General Electric Company, Schenectady, N.Y.

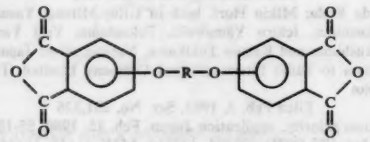
Filed Apr. 13, 1981, Ser. No. 253,446

The portion of the term of this patent subsequent to May 11, 1999, has been disclaimed.

Int. Cl.³ C07D *307/89*

U.S. Cl. 549—241 **4 Claims**

1. In the process of making aromatic bis(ether phthalic anhydride)s of the formula,



comprising effecting an exchange reaction between molten aromatic bis(ether phthalimide) and phthalic anhydride in the presence of water and an imide-anhydride exchange catalyst, and thereafter extracting the resulting mixture from the exchange reaction mixture with an inert organic solvent to produce an imide-anhydride exchange product having at least 97 mole % of the aromatic bisanhydride requiring temperatures of about 200° C. and pressures up to 500 psi whereby high pressure extraction equipment is required creating hazardous extraction conditions, the improvement which comprises increasing by a factor of at least 2, the number of times extraction of the imide anhydride exchange mixture is effected with the inert organic solvent, whereby the exchange product having at least 97 mole % of bisanhydride can be recovered at temperatures of about 160° C. or less and the need for high pressure equipment and hazardous extraction conditions is substantially avoided where R is a $C_{(6-30)}$ divalent organic radical.

4,340,546

PROCESS FOR THE REDUCTION OF UNSATURATED CARBOXYLIC ACIDS

Gail M. Qualeatti, and Dalia Germanas, both of Des Plaines, Ill., assignors to UOP Inc., Des Plaines, Ill.

Filed Mar. 9, 1981, Ser. No. 241,870

Int. Cl.³ C11C *3/12*

U.S. Cl. 260—409 **11 Claims**

1. A process for the reduction of an unsaturated carboxylic acid comprising treating an unsaturated carboxylic acid in a reaction system in the presence of hydrogen and a reduction catalyst comprising cadmium and rhenium composited on a solid support at treatment conditions, continuously bleeding hydrogen from said reaction system during the reaction period, and recovering the resultant unsaturated product.

4,340,547

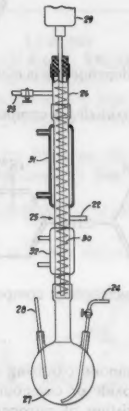
PROCESS FOR CONCENTRATING A FLOW OF LIPIDS IN SOLVENT

Daniel R. Pate, Strongsville; Robert R. Delaney, Medina, and John J. Shuleva, Parma, all of Ohio, assignors to SCM Corporation

Continuation-in-part of Ser. No. 129,182, Mar. 10, 1980, abandoned. This application Jun. 2, 1981, Ser. No. 269,750

Int. Cl.³ C09F *5/10*; C11B *3/00*

U.S. Cl. 260—428.5 **25 Claims**



1. A flow process for concentrating lipid and solvent therefor, said lipid being precipitable in solid phase from solution of same in said solvent, which comprises:

feeding lipid and solvent in fluent condition into a chamber having major and minor outlets, the feeding being intermediate to said outlets, and there being not substantially more than about 20 parts by weight solvent per part lipid;

withdrawing lipid and solvent from said outlets, the amount of lipid and solvent withdrawn from said major outlet being greater than the amount of lipid and solvent withdrawn from said minor outlet thereby establishing within said chamber a major net flow of lipid and solvent directed toward said major outlet and a minor net flow of lipid and solvent directed toward said minor outlet;

establishing temperature of said major net flow below the temperature at which a portion of said lipid therein will precipitate in solid phase therefrom, as said major net flow approaches said major outlet;

transporting solid phase lipid from the region of said major net flow into the region of said minor net flow;

maintaining temperature of said minor net flow about said minor outlet sufficiently elevated for at least partially redissolving or remelting solid phase lipid within said chamber prior to said withdrawing, the ratio of lipid to solvent in said lipid and solvent withdrawn from said minor outlet being greater than that withdrawn from said major outlet.

4,340,548

PROCESS FOR THE PREPARATION OF PERHALOALKANOYL CHLORIDE

Louis G. Anello, Hamburg; Richard E. Eibeck, Orchard Park, and Martin A. Robinson, East Amherst, all of N.Y., assignors to Allied Corporation, Morris Township, Morris County, N.J.

Filed Dec. 15, 1980, Ser. No. 216,033

Int. Cl.³ C07C *51/58*

U.S. Cl. 260—544 Y **14 Claims**

1. A process for preparation of perhaloalkanoyl chloride, which comprises contacting a 1,1,1-trichloroperhaloalkane with an effective amount of a sulfur trioxide-containing sub-

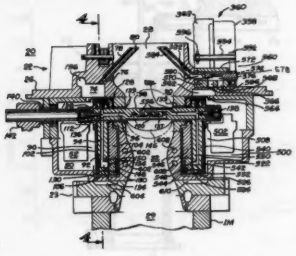
stance selected from the group consisting of oleum, SO_3 and stabilized SO_3 in the presence of a catalytic amount of a halogen catalyst, wherein the 1,1,1-trichloroperhaloalkane is a straight or branched chain acyclic organic compound having 2 to 8 carbon atoms and having at least one trihalomethyl group wherein at least one halo atom is fluorine, having the remaining carbon atoms substituted by chlorine or fluorine atoms.

4,340,549

DUAL INPUT CARBURETOR

Robert E. McKim, 1884 Fifth St., Oroville, Calif. 95905

Filed Mar. 27, 1981, Ser. No. 248,527
Int. Cl.³ F02M 7/20
U.S. Cl. 261—144 **53 Claims**



1. An improved carburetor for a liquid cooled internal combustion engine having an intake manifold, the carburetor having an air horn, a venturi section, a throat and a throttle valve disposed within the venturi section, with the improvement comprising:

(a) a spray bar rotatable on an axis extending transversely across the venturi section for rotatably supporting the throttle valve within the venturi section, said spray bar having at least one internal passageway extending along the length of said spray bar and having a plurality of openings in communication with said passageway;

(b) a first liquid reservoir;

(c) first liquid delivery means for conveying a first liquid from said first liquid reservoir to said spray bar internal passageway, said first liquid delivery means including first, flow regulating means for regulating the flow rate of the first liquid through said first liquid fuel delivery means in response to the rotational orientation of said spray bar;

(d) vacuum actuated second flow regulating means for regulating the flow rate of the first liquid through said first liquid delivery means in response to the level of manifold vacuum;

(e) thermally activated third flow regulating means for regulating the flow rate of the first liquid through said first liquid delivery means in response to both engine coolant temperature and intake manifold temperature, said third flow regulating means operating in series with said second flow regulating means, and restraining the capacity of said second flow regulating means to vary the rate of flow of the first fuel based on the temperature of the engine coolant and the intake manifold;

(f) a second liquid reservoir;

(g) second liquid delivery means for conveying a second liquid from said second liquid reservoir to said spray bar internal passageway, said second liquid delivery means including fourth flow regulating means for varying the flow rate of the second liquid through said second liquid delivery means in response to the rotational orientation of said spray bar; and

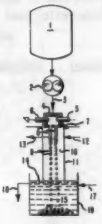
(h) fifth flow regulating means for varying the flow rate of the second liquid through said second liquid delivery means in response to engine temperature.

4,340,550

OLIGOMER PELLETS OF ETHYLENE TEREPHTHALATE

Chungfah H. Ho, Kinston, N.C., assignor to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Filed Nov. 24, 1980, Ser. No. 209,324
Int. Cl.³ B01J 2/06
U.S. Cl. 264—13 **3 Claims**



1. A process for producing free-flowing pellets of ethylene terephthalate oligomer comprising forcing a molten ethylene terephthalate oligomer having an intrinsic viscosity of from about 0.08 to 0.15 through a plurality of orifices of an orifice plate under pressure into an inert gas zone to form jets of the oligomer which dissociate into spherical droplets under the influence of surface tension, allowing the droplets to fall through the inert gas zone into a body of water to solidify the droplets into pellets, said body of water being at a distance of about 20 to 40 inches from said orifice plate, and removing the pellets from the water.

4,340,551

INJECTION MOLDED ARTICLES WITH IMPROVED SURFACE CHARACTERISTICS, PRODUCTION OF SAME AND APPARATUS THEREFOR

Akihiro Wada, Inagi; Kichiya Tazaki, Yokohama; Tamotsu Tahara, Omiya; Hiroshi Suzuki, Tokyo, and Yukihisa Mizutani, Kawasaki, all of Japan, assignors to Asahi-Dow Limited, Tokyo, Japan

Filed Aug. 11, 1980, Ser. No. 177,184
Int. Cl.³ H05B 1/00
U.S. Cl. 264—25 **3 Claims**

1. A method of injection molding thermoplastic resins or thermoplastic resins containing reinforcing material and/or fillers comprising:

heating selective inner surface areas of a metal mold by high-frequency induction heating to a temperature above the heat distortion temperature of the resin;

injecting molten resin into the mold, thereby flowing the molten resin composition adjacent to the inner surface area of the mold to form a skin layer consisting substantially of only the resin; and

cooling the mold, opening the mold, and removing a molded article.

4,340,552

MELT SPINNING SOLUTION DYED FILAMENTS AND IMPROVED SPIN PACK THEREFOR

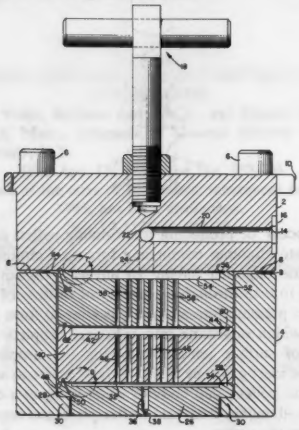
John S. Roberts, Howell, N.J., assignor to Kling-Tecs, Inc., Mantoloking, N.J.

Filed Feb. 23, 1981, Ser. No. 236,767
Int. Cl.³ B28B 7/04
U.S. Cl. 264—39 **6 Claims**

1. A method of melt spinning solution dyed polypropylene filaments with quicker color changes, comprising:

passing solution dyed polypropylene melt of a first color at a temperature below 385° F. through a spin pack containing a spinnerette having a plurality of capillaries therein;

passing the solution dyed melt downwardly through at least three shallow horizontally disposed cavities while passing through said spin pack, each of said cavities containing a set of mesh screens which occupies at least one-third the depth of the cavity so occupied and through which sets of screens said melt passes, one of said sets of screens being in contact with the spinnerette; and



extruding the solution dyed melt through said capillaries to form a plurality of solution dyed filaments of said first color;

then, when it is needed to change color, cutting off said first color and passing natural polypropylene melt through said spin pack without interrupting extrusion; and

immediately thereafter, without interrupting extrusion, passing solution dyed polypropylene melt of a second color through said spin pack to form a plurality of filaments of said second color, the color change from said first color to said second color being effected quickly and completely by purging through said spin pack.

4,340,553

MACHINE AND METHOD FOR MAKING CONCRETE PRODUCT

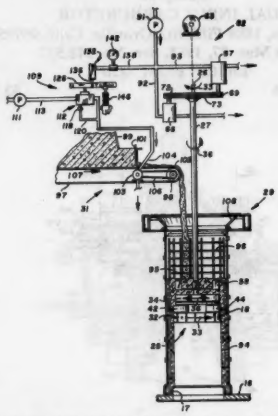
Navarro T. Fosse, Nashua, Iowa, assignor to Hydrotile Machinery Company, Nashua, Iowa

Continuation-in-part of Ser. No. 974,303, Dec. 29, 1978, abandoned. This application Sep. 18, 1980, Ser. No. 188,301

Int. Cl.³ B28B *21/26, 13/02*

U.S. Cl. 264—40.7 **46 Claims**

1. A method of making a concrete product in a mold having a chamber having a lower portion and an open top with a machine having a packerhead assembly comprising an upper packerhead unit having a plurality of roller means and annular trowel means located radially inward of the roller means rotatable in one direction and having means fixedly mounting a finned impeller to the upper packerhead unit for rotation therewith, and a lower packerhead unit having concrete working means located radially outward of said annular trowel means rotatable in a direction opposite the one direction, said upper packerhead unit being located above the lower packerhead unit comprising: positioning the packerhead assembly in the lower portion of the chamber of the mold, discharging the concrete into said chamber to provide a supply of concrete on top of said upper packerhead unit, controlling the discharge of said concrete into said chamber to maintain a generally constant supply of concrete on top of said upper packerhead unit in response to the amount of torque required to rotate the upper packerhead unit, moving said packerhead assembly longitudinally in said chamber from the bottom to the top thereof, packing concrete in an annular space between said upper packerhead unit and said mold with the roller means by rotating the upper packerhead unit in one direction during the longitudinal movement thereof, moving the supply of concrete radially outwardly by said finned impeller as the same rotates with said upper packerhead, metering said packed concrete to



said lower packerhead unit with said trowel means, and further packing said packed concrete with said concrete working means by rotating the lower packerhead unit in a direction opposite the direction of rotation of the upper packerhead unit during said longitudinal movement thereof, and removing the completed concrete product from said mold.

4,340,554

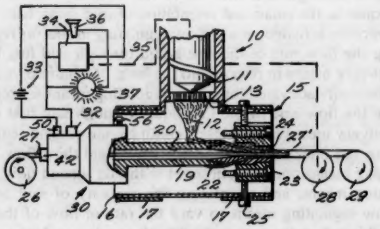
METHOD AND APPARATUS FOR EXTRUSION COATING OF A CABLE INVOLVING GUIDER TIP PROTECTION FROM AN OVERSIZED PORTION OF THE CABLE

Robert G. Bardwell, Rte. 1, Box 60, Starksville, Miss. 39759

Filed Sep. 29, 1980, Ser. No. 192,031

Int. Cl.³ B29F *3/10;* **G01B** *3/34*

U.S. Cl. 264—40.7 **12 Claims**



1. A method of forming insulated cable from uninsulated cable utilizing a molten insulation extruder, a cable guiding mandrel, a forming die, and a guider tip of the mandrel, comprising the steps of:

(a) feeding uninsulated cable from a source to the guiding mandrel;

(b) extruding molten cable insulation between the guider tip and forming die to coat the cable with insulation;

(c) continuously withdrawing the coated cable from the forming die;

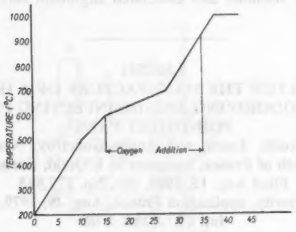
(d) sensing the cross-sectional dimensions of the uninsulated cable during feeding thereof to the guiding mandrel; and
(e) generating a signal in response to the uninsulated cable sensing if any cross-sectional dimension of the uninsulated cable is greater than a predetermined amount.

4,340,555

MANUFACTURE OF CERAMIC ARTICLES

James W. Procter, 12 Victoria St., Southport, PR9 ODU, Merseyside, England

Continuation of Ser. No. 857,968, Dec. 6, 1977, abandoned. This application Mar. 19, 1980, Ser. No. 131,572
Claims priority, application United Kingdom, Dec. 8, 1976, 51102/76
Int. Cl.³ C04B *33/32*
U.S. Cl. 264—65 **13 Claims**



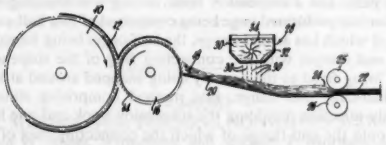
1. In the process for the manufacture of ceramic products from carbonaceous clay comprising heat-treating shaped articles of carbonaceous clay in a kiln wherein carbon is removed by oxidation, the improvement comprising adding essentially pure oxygen to the kiln separately from the fuel to increase the oxygen level in the kiln during oxidation of the carbon content of the clay.

4,340,556

PRODUCTION OF FIBROUS SLIVER HAVING PARTICULATE MATTER DISTRIBUTED THERETHROUGH

Evelyn Ciencewicki, South River, N.J., assignor to Personal Products Company, Milltown, N.J.

Filed Dec. 5, 1980, Ser. No. 213,439
Int. Cl.³ D04H *1/04*
U.S. Cl. 264—119 **9 Claims**



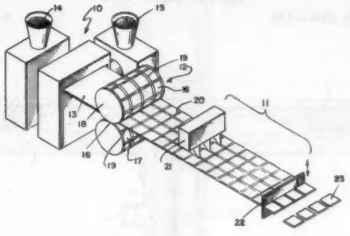
1. A method for producing a fibrous sliver having particulate material distributed therethrough wherein the largest dimension of said fibrous material is at least 1.5 times that of the particulate material, said method comprising:
first forming a gossamer-like web;
compacting said gossamer-like web to form a low weight web of fibrous material having a weight per unit area of from about 0.015 to about 0.10 times that desired in the finished sliver;
depositing said particulate material only onto said low weight web; and
compacting the web by reducing its width by a factor of about 10.0 to about 66.7 to form the sliver.

4,340,557

METHOD OF MAKING UNFESTOONED PLASTIC CONTAINERS FROM POLYGONAL BLANKS

Robert M. Gross, Muncie, Ind., assignor to Ball Corporation, Muncie, Ind.

Filed Dec. 16, 1980, Ser. No. 216,747
Int. Cl.³ B29D *23/10*
U.S. Cl. 264—146 **18 Claims**



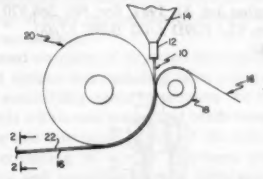
1. A method of preventing festooning effect on a container produced by scrapless forming process comprising providing a thermoplastic sheet material, impressing surface grooves on said sheet material, severing within said grooves to separate said sheet material into individual blanks, each blank having sufficient material to form a container, each blank having a pair of major faces located substantially parallel to one another and having a minor surface provided by said impressing step, said minor surface extending outwardly from said major faces and presenting a smooth surface commensurate to that of said major faces and an essentially unsmooth surface provided by said severing step, thereafter forging said blank in a forging mold heated to a temperature at least as high as the softening temperature of the thermoplastic material of said blank to form a preform, and forming said preform into a container.

4,340,558

SCRIM REINFORCED PLASTIC FILM

Thomas C. Hendrickson, South River, N.J., assignor to Colgate-Palmolive Company, New York, N.Y.

Division of Ser. No. 683,555, May 5, 1976, abandoned. This application Dec. 7, 1979, Ser. No. 101,234
Int. Cl.³ B29C *17/00*
U.S. Cl. 264—151 **12 Claims**



1. Process for preparing a scrim-reinforced film composite comprising the steps of feeding hot molten synthetic non-metallic plastic material from a source in a state of high fluidity onto and into an unsupported scrim in the form of a sheet or web having a network of spaced strands, said plastic material being in a molten highly fluid state when it first contacts said scrim and being caused to flow into and around the scrim network under such conditions and in such manner that the molten plastic while still fluid flows over, between and around said strands whereby to completely cover and coat said strands on opposite sides and completely occupy the spaces between said strands, and then cooling said covered scrim to solidify the

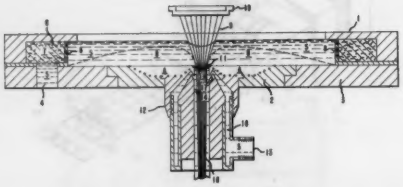
plastic material to produce a scrim-film composite wherein the scrim is completely enclosed by said plastic material.

4,340,559

SPINNING PROCESS

Hung H. Yang, Richmond, Va., assignor to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Filed Oct. 31, 1980, Ser. No. 202,737
Int. Cl.³ D01D *5/14*
U.S. Cl. 264—181 **6 Claims**



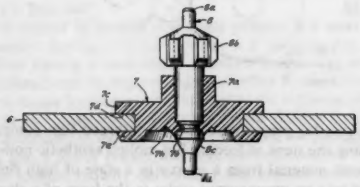
1. A process for spinning high strength, high modulus aromatic polyamide filaments from aromatic polyamides having an inherent viscosity of at least 4.0 whose chain extending bonds are coaxial or parallel and oppositely directed by extruding downwardly an anisotropic solution in 98.0–100.2% sulfuric acid having a polyamide concentration of at least 30 g/100 ml solvent through a layer of noncoagulating fluid into a coagulating bath whereby overflowing coagulating liquid passes downwardly through an orifice along with the filaments, the filaments are separated from the coagulating liquid, forwarded at 500 to 2,000 m/min., washed, dried and wound up, wherein a shallow bath is used, said bath having sufficient width to provide substantially horizontal nonturbulent flow of coagulating liquid toward said orifice and having no more than a minor portion of the total coagulating liquid lower than the entrance of said orifice within the area of nonturbulent flow adjacent to said orifice, the orifice having a length to diameter ratio of 3 or less and the cross-sectional area of the orifice being such as to provide a mass flow ratio of quench liquid/polymer of 25–200.

4,340,560

METHOD FOR MAKING A ROTOR ASSEMBLY

Jean P. Migeon, Audeux, France, assignor to Timex Corporation, Waterbury, Conn.

Division of Ser. No. 109,594, Jan. 4, 1980, abandoned. This application Jul. 31, 1981, Ser. No. 288,970
Int. Cl.³ B29D *3/00*; B29C *17/00*
U.S. Cl. 264—249 **4 Claims**



1. A method for making a rotor assembly for a stepping motor, comprising:

(a) mounting a hub of molded thermoplastic material onto a shaft having a circumferential groove intermediate the shaft ends, said hub having a generally cylindrical body with one end including a first preformed annular shoulder extending radially outward to provide an alignment surface for rotor location and the other end disposed around the groove in said shaft,

(b) disposing an annular rotor disc having oppositely facing flat sides onto the cylindrical body of the hub with one flat side thereof abutted against the alignment surface of the preformed annular shoulder to effect proper alignment of the rotor disc on the shaft, and

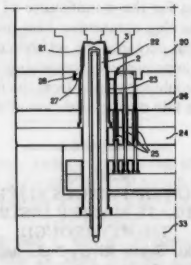
(c) working with heat and pressure outer and inner portions of said other hub end adjacent the other flat side of the mounted rotor disc to form in situ a second annular shoulder extending radially outward and spaced from the first preformed annular shoulder to clamp the rotor disc therebetween against said alignment surface, and to form in situ a circumferential lip extending radially inward into the circumferential groove on the shaft to thereby prevent axial movement of the hub on the shaft, said working being localized at said other end adjacent the other flat side of the rotor disc so as not to distort the preformed annular shoulder and associated alignment surface of the hub.

4,340,561

PROCESS FOR THE MANUFACTURE OF A HOLDER FOR A DEODORIZING AND DISINFECTING PRODUCT FOR TOILET PANS

Bertrand Cretin, Tours, and Andre Godefroy, Neuille-Pont-Pierre, both of France, assignors to L'Oreal, Paris, France

Filed Aug. 13, 1980, Ser. No. 177,813
Claims priority, application France, Aug. 29, 1979, 79 21659
Int. Cl.³ B28B *3/06*
U.S. Cl. 264—297 **4 Claims**



1. A process of manufacturing, by moulding from plastics material, a holder which comprises a perforated cage intended to contain a stick of deodorising and disinfecting product for toilet pans, and a suspension hook having a connecting ring portion, the perforated cage being comprised of two half-cages each of which has an end flange, the half-cages being joined by their end flanges with the connecting ring of the suspension hook being fixed to the cage by being snapped around at least one half-cage end flange, said method comprising simultaneously injection moulding the suspension hook and one half-cage onto the end flange of which the connecting ring of the hook is to be snapped, the suspension hook and half-cage being injection-moulded in the same mould, but inside two separate moulding cavities, the mould comprising a die and a core engaging within the die to define the moulding cavity for the half-cage, a releasing sleeve surrounding the said core and movable relative thereto for stripping a formed half-cage from the core, a releasing plate cooperable with the die, the moulding cavity for the suspension hook being delimited by the die, the releasing sleeve and the releasing plate, and ejectors for separately displacing the releasing plate and the releasing sleeve relative to the core and for displacing a moulded half-cage/suspension hook unit from the releasing plate, and following moulding the mould is opened, the die is separated from the core, the releasing plate which carries the moulded hook is displaced by at least one of said ejectors parallel to the

core axis until the connecting ring of the hook snaps around the end flange of the moulded half-cage carried by the core, the releasing plate and the releasing sleeve are displaced by means of at least one ejector to detach the half-cage/suspension hook unit from the core, and the ejectors are displaced relative to the releasing plate so as to release the half-cage/suspension hook unit from the latter.

4,340,562

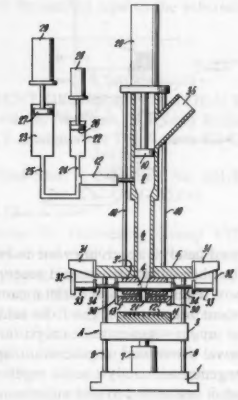
PROCESS FOR PRODUCING A MOLDED ARTICLE

Laurence H. Gross, Bridgewater, and Marvin E. Sauers, Belle Mead, both of N.J., assignors to Union Carbide Corporation, Danbury, Conn.

Continuation-in-part of Ser. No. 113,345, Jan. 18, 1980, abandoned. This application Feb. 18, 1981, Ser. No. 235,462

Int. Cl.³ B29G *3/00*

U.S. Cl. 264—328.2 **14 Claims**



1. A process for producing a fiber reinforced thermoset resin article which comprises the steps of (a) providing in a distributing zone, an intimate mixture of one or more fibers with a melting point or a glass transition temperature above about 130° C., having a fiber length greater than about 0.5 centimeters, and a liquid resin having a viscosity of less than about 3000 centipoise at 25° C., (b) injecting said mixture into the cavity of a closed matched metal die mold, thereby filling said cavity with said mixture; (c) heating said mixture so as to cause an exothermic reaction to occur in said mold, and (d) opening said mold and recovering a thermoset molded article therefrom.

4,340,563

METHOD FOR FORMING NONWOVEN WEBS

David W. Appel, Wittenberg, and Michael T. Morman, Appleton, both of Wis., assignors to Kimberly-Clark Corporation, Neenah, Wis.

Filed May 5, 1980, Ser. No. 146,450

Int. Cl.³ B29J *5/00*

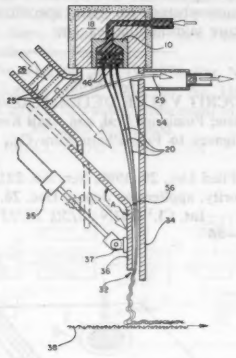
U.S. Cl. 264—518 **8 Claims**

1. Method of forming a nonwoven web comprising the steps of,

(a) forming one or more rows of closely spaced filaments by spinning molten polymer steams;

(b) directing said spun filaments through a low pressure quench chamber;

(c) contacting said filaments with a low pressure quenching fluid at a temperature cooler than said filaments within said quench chamber to produce substantially nontacky filaments while maintaining said filament cross machine distribution substantially constant;



(d) drawing said filaments noneductively in a nozzle by substantially uniformly accelerating the quenching fluid to a uniform high velocity in a nozzle; and

(e) collecting said filaments as a web of entangled filaments.

4,340,564

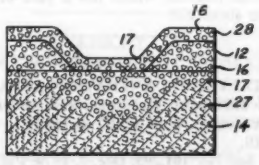
IMMUNOADSORPTIVE SURFACE COATING FOR SOLID-PHASE IMMUNOSUBSTRATE AND SOLID-PHASE IMMUNOSUBSTRATE

Richard A. Harte, Redwood City, and Max Bart, San Jose, both of Calif., assignors to Daryl Laboratories, Inc., Santa Clara, Calif.

Filed Jul. 21, 1980, Ser. No. 170,632

Int. Cl.³ G01N *33/50, 31/22*

U.S. Cl. 422—56 **2 Claims**



1. A solid-phase immunoreactive immunosubstrate for use in immunological assay determinations comprising:

a solid-phase surface;

a water based emulsion of dispersed latex polymer beads coating said surface and including latex polymer beads, water and an emulsifying agent to promote the emulsification of said beads within said water, said beads being of microdiameter size and composed of one of the substances from the group consisting of acrylic polymers, polyvinyl acetate polymers and butediene-styrene copolymers, and formed with a diameter of from 0.1 microns up to 1.0 microns, said coating further including a source of light scattering centers added to said coating to improve its fluorescent properties, whereby the concentration by weight of the components of said coating is approximately 15% light scattering centers, 15% polymer beads, 69% water and a 1% emulsifying agent;

an overcoating disposed over said coating and composed of a liquid emulsion having a composition by weight which includes 10–20% light scattering centers and 16–25% latex polymer beads of substantially identical size to those contained in said coating, plus a water vehicle in an amount sufficient to equal 100%, and having added to each 100 milliliters thereof, 0.5 grams of carboxymethyl cellulose, 1

milliliter of polyvinyl alcohol and 1 milliliter of hydroxypropylmethyl cellulose; and

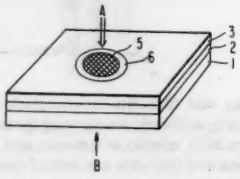
an immunoreagent applied to at least one of said coating and said overcoating and adsorbed thereto to form an immunoreactive immunosubstrate for use in specific immunoreactions which require said immunoreagent.

4,340,565

HEMATOCRIT VALUE DETERMINING ELEMENT

Masao Kitajima; Fuminori Arai, and Asaji Kondo, all of Asaka, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Filed Dec. 29, 1980, Ser. No. 221,183
Claims priority, application Japan, Dec. 28, 1979, 54-173624
Int. Cl.³ G01N *33/50, 33/52*
U.S. Cl. 422—56 **17 Claims**



1. A hematocrit value determining element comprising a water-impermeable planar support having integrally provided thereon a porous spreading layer which has a hydrophilic surface and in which the surface of the internal voids or the interior is hydrophilic and water-insoluble, said porous spreading layer being such that blood spreads therethrough depending upon the spreading nature of the blood, wherein the porous spreading layer has a mean pore diameter ranging from about 0.1 μm to about 2.5 μm and wherein the porous spreading layer comprises a layer of a non-fibrous porous material or a fibrous porous material which has a yarn number count of about 100 to about 200.

4,340,566

CATALYST REGENERATION APPARATUS

Gregory J. Thompson, Waukegan, and Anthony G. Vickers, Arlington Heights, both of Ill., assignors to UOP Inc., Des Plaines, Ill.

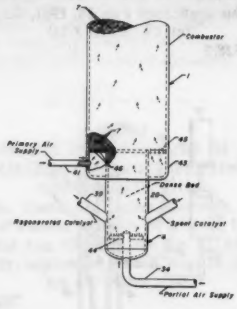
Division of Ser. No. 101,295, Dec. 7, 1979, Pat. No. 4,285,908, which is a continuation-in-part of Ser. No. 908,301, May 22, 1978, Pat. No. 4,197,189. This application Mar. 2, 1981, Ser. No. 239,814
The portion of the term of this patent subsequent to Aug. 25, 1998, has been disclaimed.
Int. Cl.³ B01J *8/32;* **B01J** *8/44;* **F27B** *15/08, 15/10*
U.S. Cl. 422—143 **1 Claim**

1. A regeneration apparatus for regenerating spent catalyst with a regeneration gas which comprises a combination of:

(a) a vertical mixer zone having at the lower portion thereof a spent catalyst inlet, a regenerated catalyst inlet and a secondary fluidizing gas inlet for passage of a minor portion of said fluidizing gas, and having at the uppermost portion thereof an upwardly directed outlet for passage of a mixture of spent and regenerated catalyst, said uppermost portion terminating at the inlet means of the catalyst chamber of (b);

(b) a relatively dense-phase fluidized bed catalyst chamber having at least twice the diameter of said mixer zone and having at the bottommost portion thereof an inlet means for receiving a mixture of spent and regenerated catalyst, and having a regenerated catalyst and spent regeneration gas outlet means at the top portion of said chamber for removal of regenerated catalyst and spent regeneration gas in admixture from said chamber, wherein the peripheries of said inlet means and said mixer zone outlet are connected with a substantially horizontal perforated surface in the transfer section of (c);

(c) a transfer section possessing a primary regeneration gas inlet, said transfer section comprising said substantially horizontal perforated surface having an outside perimeter intermediate the outside perimeters of said chamber and said mixer zone, said horizontal surface containing multiple perforations connective with said primary regeneration gas inlet for passage of a major portion of said regeneration gas into said chamber, said transfer section located above said spent catalyst, said regenerated catalyst and said fluidizing gas inlets of said mixer zones; and



(d) a regenerated catalyst receiving zone in communication with said chamber outlet means, said receiving zone containing a spent regeneration gas outlet means for the withdrawal of spent regeneration gas from said regeneration apparatus, an upper regenerated catalyst outlet means for the withdrawal from said regeneration apparatus of a portion of regenerated catalyst and a regenerated catalyst recycle conduit connected to said mixer zone by means of said regenerated catalyst inlet for the passage of a portion of said regenerated catalyst from said receiving zone through said conduit and said inlet to said mixer zone.

4,340,567

Patent Not Issued For This Number

4,340,568

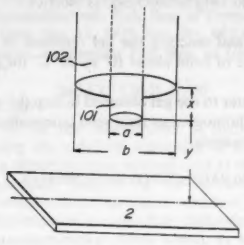
SUPER HARD HIGHLY PURE SILICON NITRIDES AND A PROCESS AND APPARATUS FOR PRODUCING THE SAME

Toshio Hirai, and Koichi Niihara, both of Sendai, Japan, assignors to The Research Institute for Iron, Steel and Other Metals of the Tohoku University, Japan

Continuation of Ser. No. 926,613, Jul. 21, 1978, abandoned, which is a division of Ser. No. 756,282, Jan. 3, 1977, Pat. No. 4,118,539. This application Jan. 28, 1980, Ser. No. 115,728
Claims priority, application Japan, Jan. 13, 1976, 51-2468
Int. Cl.³ C30B *35/00*
U.S. Cl. 422—245 **1 Claim**

1. An apparatus for producing super hard highly pure silicon nitrides, comprising a container, a means for clamping and heating a substrate accommodated in the container, and a blowpipe for blowing each of a nitrogen depositing source and a silicon depositing source on the substrate, said blowpipe being composed of a pipe assembly wherein a first pipe for said nitrogen depositing source is surrounded with a second pipe for said silicon depositing source so as to surround a gas stream

of said nitrogen depositing source with a gas stream of said silicon depositing source and a distance from an opening end of



the first pipe to the substrate is shorter than a distance from an opening end of the second pipe to the substrate.

4,340,569

TREATMENT OF CARBONYLATION RESIDUES

Walter C. Davidson, Mahwah, N.J., and Richard V. Porcelli, Yonkers, N.Y., assignors to The Halcon SD Group, Inc., New York, N.Y.

Filed Mar. 6, 1981, Ser. No. 241,180
Int. Cl.³ C01G *55/00*
U.S. Cl. 423—22 **16 Claims**

1. In a process for recovering Group VIII noble metals bound to residues of noble metal catalyzed carbonylation reactions comprising separating said residues, vaporizing the volatile components therefrom to produce a reduced residue, treating the reduced residues with an amine, and extracting said noble metals from said treated reduced residue with an aqueous halogen acid, the improvement comprising treating said residues with an alkanol or mixture thereof and thereafter vaporizing the volatile components at low temperatures and a suitable vacuum, thereby improving the subsequent recovery of said noble metals.

4,340,570

RECOVERY OF RHODIUM FROM CARBONYLATION RESIDUES

Walter C. Davidson, Mahwah, N.J., assignor to The Halcon SD Group, Inc., New York, N.Y.

Filed Mar. 6, 1981, Ser. No. 241,181
Int. Cl.³ C01G *55/00*
U.S. Cl. 423—22 **10 Claims**

1. A process for recovering Group VIII noble metals from the residues of noble metal catalyzed carbonylation reactions comprising:

(a) separating said residues from the carbonylation reaction mixture;

(b) vaporizing the volatile components of said residues of (a) at low temperatures under vacuum and recovering a heavy material therefrom;

(c) treating said heavy material of (b) with a reagent comprising an amine in an amount sufficient to free a portion of said noble metals bound to said residue;

(d) extracting said treated heavy material of (c) with an aqueous halogen acid in the presence of a solvent able to dissolve heavy material, thereby recovering a portion of said noble metals in said aqueous acid;

(e) evaporating said solvent of (d) and recovering a dissolved residue depleted in noble metal;

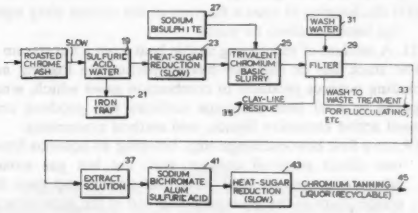
(f) repeating steps (c) (d) and (e) until a predetermined desired fraction of the noble metal in the heavy material of (b) has been removed.

4,340,571

PROCESS FOR CHROME RECOVERY FROM INDUSTRIAL WASTE AND THE LIKE, AS FROM CHROME-LADENED TANNERY WASTE

James E. Cartier, Saco, Me., assignor to Saco Tanning Division of Kirstein Leather Co., Saco, Me.

Division of Ser. No. 916,464, Jun. 19, 1978, Pat. No. 4,215,989.
This application May 1, 1980, Ser. No. 145,737
The portion of the term of this patent subsequent to Aug. 5, 1997, has been disclaimed.
Int. Cl.³ C01G *37/00, 37/08*
U.S. Cl. 423—53 **4 Claims**



1. A process for reclaiming chromium from roasted chromium ash resulting from the incineration of industrial waste, the ash containing chromium in substantially completely the hexavalent state, the process comprising the steps of mixing the ash with sulfuric acid and water to form an acid-ash slurry; adding a reducing agent to the slurry to convert the hexavalent chromium to the trivalent state; filtering the slurry and reducing agent mixture to provide an extract solution of trivalent chromium and a residue; and water-washing the residue to remove extract solution remaining in the residue after said filtering and to provide an aqueous wash solution, said extract solution and said aqueous wash solution providing said reclaimed chromium.

4,340,572

PROCESS FOR RECOVERING HEAT FROM STACK OR FLUE GAS

Dan Ben-Shmuel, St. Johnsville, and Philip Zacuto, Johnstown, both of N.Y., assignors to Woodside Construction, Inc., Johnstown, N.Y.

Filed May 19, 1978, Ser. No. 907,667
Int. Cl.³ C01B *17/00*
U.S. Cl. 423—242 **11 Claims**

1. A method of recovering usable heat from a hot stream of waste stack gas or flue gas having particulate loading and including noxious products of combustion gases including sulfur dioxide which, when exposed to cool heat exchange surfaces will produce condensed active corrosive liquids, said method comprising:

(A) as a first heat exchange step, bringing an aqueous liquid into direct physical contact with the hot gas stream whereby to extract heat from said stream and raise the temperature of the aqueous liquid and at the same time to cleanse said stream by

(i) dispersing the particulate loading in the aqueous liquid and

(ii) dissolving said noxious gases in said aqueous liquid

(iii) so that a dirty heated liquid aqueous medium and a cool cleansed gas stream are produced, and further so that the noxious gases are removed as a dilute aqueous solution thereof and in an environment such that the dilute aqueous solution of dissolved noxious gases is innocuous,

(iv) said aqueous liquid being an aqueous solution containing a dissolved alkaline medium selected from the group consisting of the hydroxide, sulfite and carbonate of sodium, potassium, lithium and ammonia,

(B) then as a second heat exchange step, passing the dirty heated liquid aqueous medium with dispersed particulate loading and dissolved noxious gases in indirect heat exchange with a cooler fluid working medium such as process water, potable water, boiler feed water, air for space heating, and combustion air,

(C) whereby the dirty heated liquid aqueous medium is cooled and the cooler fluid medium is heated so that the heat from the hot gas stream by means of said two heat exchange steps raises the temperature of the fluid medium without dirtying the fluid medium and without producing corrosive liquids from said noxious gases during the second heat exchange step, and

(D) discharging at least a fraction of the cooled dirty aqueous liquid medium to waste.

11. A method of recovering usable heat from a hot stream of waste stack gas or flue gas having particulate loading and including noxious products of combustion gases which, when exposed to cool heat exchange surfaces will produce condensed active corrosive liquids, said method comprising:

(A) as a first heat exchange step, bringing an aqueous liquid into direct physical contact with the hot gas stream whereby to extract heat from said stream and raise the temperature of the aqueous liquid and at the same time to cleanse said stream by

(i) dispersing the particulate loading in the aqueous liquid and

(ii) dissolving said noxious gases in said aqueous liquid

(iii) so that a dirty heated liquid aqueous medium and a cool cleansed gas stream are produced, and further so that the noxious gases are removed as a dilute aqueous solution thereof and in an environment such that the dilute aqueous solution of dissolved noxious gases is innocuous,

(B) then as a second heat exchange step, passing the dirty heated liquid aqueous medium with dispersed particulate loading and dissolved noxious gases in indirect heat exchange with a cooler fluid working medium such as process water, potable water, boiler feed water, air for space heating, and combustion air,

(C) whereby the dirty heated liquid aqueous medium is cooled and the cooler fluid medium is heated so that the heat from the hot gas stream by means of said two heat exchange steps raises the temperature of the fluid medium without dirtying the fluid medium and without producing corrosive liquids from said noxious gases during the second heat exchange step, and

(D) discharging at least a fraction of the cooled dirty aqueous liquid medium to waste.

4,340,573

PREPARATION OF ZEOLITES

David E. W. Vaughan, Columbia; Grant C. Edwards, Silver Spring, and Michael G. Barrett, Laurel, all of Md., assignors to W. R. Grace & Co., New York, N.Y.

Continuation of Ser. No. 731, Jan. 3, 1979, abandoned, which is a continuation-in-part of Ser. No. 880,194, Feb. 22, 1978, abandoned, which is a continuation-in-part of Ser. No. 822,310, Aug. 5, 1977, abandoned, which is a continuation of Ser. No. 742,943, Nov. 18, 1976, abandoned, which is a continuation of Ser. No. 653,695, Jan. 30, 1976, abandoned. This application Jan. 9, 1980, Ser. No. 211,888

The portion of the term of this patent subsequent to Dec. 11, 1996, has been disclaimed.

Int. Cl.³ C01B *33/26*

U.S. Cl. 423—328 **3 Claims**

1. A method for preparing a crystalline aluminosilicate zeolite-forming seed composition having the mol ratio formula:

$$16Na_2O{:}2 \text{ to } 9Al_2O_3{:}15SiO_2{:}500 \text{ to } 2000H_2O$$

which comprises:

(a) mixing a sodium aluminate solution with a sodium silicate solution to obtain a gel having the following mol ratio formula:

$$16Na_2O{:}2 \text{ to } 9Al_2O_3{:}15SiO_2{:}300 \text{ to } 340H_2O;$$

(b) agitating and reacting the gel obtained in step (a) at a temperature of from about 10° to 80° C. for about ¼ to 96 hours; and

(c) adding water to the gel obtained in step (b) with agitation to obtain a homogenous fluid seed composition having the mol ratio formula:

$$16Na_2O{:}2 \text{ to } 9Al_2O_3{:}15SiO_2{:}500 \text{ to } 2000H_2O.$$

4,340,574

PROCESS FOR THE PRODUCTION OF ULTRAHIGH PURITY SILANE WITH RECYCLE FROM SEPARATION COLUMNS

Larry M. Coleman, Tonawanda, N.Y., assignor to Union Carbide Corporation, New York, N.Y.

Filed Aug. 28, 1980, Ser. No. 182,148

Int. Cl.³ C01B *33/04*

U.S. Cl. 423—347 **7 Claims**

1. In the process for the production of silane from metallurgical grade silicon which process includes the steps of (i) reacting metallurgical grade silicon with hydrogen and silicon tetrachloride at elevated temperature and pressure in a hydrogenation reaction zone to form trichlorosilane and dichlorosilane; (ii) separating tri- and dichlorosilane as an overhead stream and unreacted silicon tetrachloride as a bottom stream in a first distillation zone; (iii) separating said overhead stream of tri- and dichlorosilane in a second distillation zone to form a dichlorosilane-rich overhead stream and a trichlorosilane-rich bottom stream; (iv) recycling said unreacted silicon tetrachloride bottom stream to said hydrogenation reaction zone; (v) subjecting said dichlorosilane-rich overhead of (iii) to temperature and pressure conditions capable of causing the disproportionation thereof in a first disproportionation reaction zone containing an ion exchange resin capable of catalyzing said disproportionation reaction, thereby forming a mixture of silane and chlorosilanes; (vi) subjecting said trichlorosilane-rich bottom stream of (iii) to temperature and pressure conditions capable of causing the disproportionation thereof in a second disproportionation reaction zone containing an ion exchange resin capable of catalyzing said disproportionation reaction, thereby forming a mixture of chlorosilanes and silicon tetrachloride; (vii) recycling said mixtures of chlorosilanes and silicon tetrachloride of (vi) to said first distillation zone; (viii) separating said mixture of silane and chlorosilanes of (v) in a third distillation zone to form a product silane overhead stream and a chlorosilane-rich bottom stream; (ix) recycling said chlorosilane-rich bottom stream from said third distillation zone to said second distillation zone; and (x) recovering silane product from said third distillation zone, the improvement which comprises bleeding a portion of the trichlorosilane-rich bottom stream of (iii) said bleed portion containing one or more of BCl_3, PCl_3 and $AsCl_3$ impurities and adding said portion to the unreacted silicon tetrachloride bottom recycle stream of (iv) and bleeding a portion of the chlorosilane-rich bottom stream of (viii) said bleed portion containing one or more of B_2H_6, PH_3 and AsH_3 impurities and adding said portion to the unreacted silicon tetrachloride bottom recycle stream of (iv), wherein the respective bleed portions of the trichlorosilane-rich bottom stream of (iii) and chlorosilane-rich bottom stream of (Viii) are 0.01 to 0.1 percent of their respective bottom streams.

4,340,575

MANUFACTURE OF HYDROXYLAMMONIUM SALTS

Guenther Rapp; Kurt Jockers, both of Ludwigshafen, and Erwin Thomas, Freinsheim, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Fed. Rep. of Germany

Filed Sep. 15, 1978, Ser. No. 942,658

Claims priority, application Fed. Rep. of Germany, Sep. 27, 1977, 2743297

Int. Cl.³ C01B *21/20*

U.S. Cl. 423—387 2 Claims

1. A process for the manufacture of hydroxylammonium salts comprising the catalytic reduction of nitric oxide with hydrogen in a dilute aqueous mineral acid in the presence of a suspended platinum catalyst at an elevated temperature, wherein the reaction is carried out in vessels of which the walls consist of conventional copper-free molybdenum-containing austenitic chromium-nickel steels which, in addition to iron, consist essentially of from 16 to 28% by weight of chromium, from 20 to 50% by weight of nickel, from 1 to 4% by weight of molybdenum and at most 0.1% by weight of carbon and which in addition contain an amount of titanium which is at least 5 times the amount of carbon but is not more than 1.0% by weight, or an amount of niobium or tantalum which is at least 8 times the amount of carbon but is not more than 1.5% by weight.

4,340,576

HIGH PRESSURE REACTION VESSEL FOR GROWING DIAMOND ON DIAMOND SEED AND METHOD THEREFOR

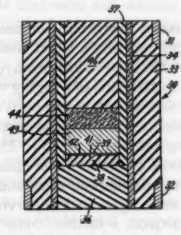
Herbert M. Strong, Schenectady, N.Y., assignor to General Electric Company, Worthington, Ohio

Continuation of Ser. No. 412,190, Nov. 2, 1973, abandoned. This application May 9, 1980, Ser. No. 148,214

The portion of the term of this patent subsequent to Mar. 30, 1999, has been disclaimed.

Int. Cl.³ C01B *31/06*

U.S. Cl. 423—446 30 Claims



7. In the process for producing diamond material wherein a reaction vessel containing (a) diamond seed material and (b) a source of carbon separated by (c) a mass of catalyst-solvent material for the diamond-making process is subjected to simultaneous pressurizing and heating at a pressure and temperature in the diamond stable region of the phase diagram for carbon; said source of carbon, said catalyst-solvent material and said diamond seed material being disposed in said vessel so that during said pressurizing and heating a predetermined temperature gradient exists between said diamond seed material and said source of carbon such that said diamond seed material is at the minimum value of temperature for said temperature gradient while said source of carbon is at the maximum value of temperature for said temperature gradient, the improvement of inhibiting diamond growth in the peripheral vicinity of said diamond seed material at least until substantial diamond growth has developed from said diamond seed material by the use of a layer of nucleation suppressing material, different from said mass of catalyst-solvent material, disposed in contact with the underside of the mass of catalyst-solvent material in the area peripheral to said diamond seed material, said nucleation suppressing material being a metal capable of holding back diamond nucleation at least until the seeded growth becomes quite large, well formed and capable of accepting the full carbon flux selected from the group consisting of cobalt, iron, manganese, titanium, chromium, tungsten, vanadium, niobium, tantalum, zirconium, and alloys of the preceding metals, said metal capable of holding back diamond nucleation thereby suppressing unwanted spontaneous diamond nucleation the diamond seed material being in direct contact with the mass of catalyst-solvent to allow unrestricted diamond growth from the seed material freely into the mass of catalyst-solvent under the operating conditions, whereby diamond growth greater than about 1/20 carat is produced.

4,340,577

PROCESS FOR PRODUCING CARBON BLACK

Kohichi Sugawara; Isamu Matsui; Naoki Ishimaru, all of Ohmuta, and Teruhiro Ikegami, Taimeimachi, all of Japan, assignors to Denki Kagaku Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Dec. 3, 1980, Ser. No. 212,433

Claims priority, application Japan, Mar. 11, 1980, 55-30777

Int. Cl.³ C01B *31/02;* C09C *1/48*

U.S. Cl. 423—450 5 Claims

1. A process for producing carbon black, comprising:

simultaneously ejecting streams of thermally decomposing acetylene and a partially burning hydrocarbon selected from the group consisting of ethylenically unsaturated hydrocarbons, aromatic hydrocarbons, monocyclic unsaturated hydrocarbons and polycyclic unsaturated hydrocarbons in the presence of oxygen from separate sources allowing initiation of the decomposing and combustion reactions before said streams converge, and

immediately mixing the materials in the streams such that the bulk of the decomposition and combustion reactions occur while all of the materials are combined in a single zone in a reaction furnace, whereby said carbon black product is produced having the ability to adsorb hydrogen chloride in amounts greater than 17.0 ml/5 g of carbon black.

4,340,578

OXYGEN PRODUCTION BY MOLTEN ALKALI METAL SALTS

Donald C. Erickson, 1704 S. Harbor La., Annapolis, Md. 21401

PCT No. PCT/US78/00149, § 371 Date Jul. 15, 1980, § 102(e) Date Jul. 15, 1980, PCT Pub. No. WO80/01066, PCT Pub. Date May 29, 1980

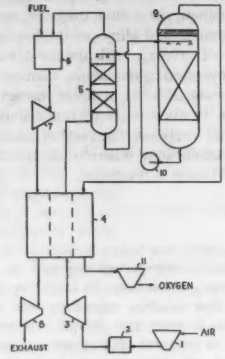
Continuation-in-part of Ser. No. 799,945, May 24, 1977, Pat. No. 4,132,766. This PCT application Nov. 16, 1978, Ser. No. 198,139

Int. Cl.³ C01B *13/02*

U.S. Cl. 423—579 7 Claims

1. A continuous process for separating oxygen from air comprising reacting an oxygen acceptor with air in an absorption reaction, separately decomposing the oxidized oxygen acceptor to yield oxygen and regenerated oxygen acceptor, and recycling the oxygen acceptor, characterized in that the

oxygen acceptor is a molten solution of alkali metal salt comprised of a cation composition of sodium and potassium cations



and an anion composition of 50 to 94% nitrate, 4 to 25% nitrite, and 2 to 25% combined peroxide and superoxide.

4,340,579

PROCESS FOR PRODUCING MODIFIED ALUMINA HYDRATE CRYSTALS

Jorg F. Greber, Bonn, and Gunter Winkhaus, Konigswinger, both of Fed. Rep. of Germany, assignors to Vereinigte Aluminium-Werke Aktiengesellschaft, Bonn, Fed. Rep. of Germany

Filed Nov. 30, 1979, Ser. No. 98,846

Claims priority, application Fed. Rep. of Germany, Dec. 2, 1978, 2852273

Int. Cl.³ C01F *7/02*

U.S. Cl. 423—625 **8 Claims**

1. A process for producing modified gibbsite alumina trihydrate particles which comprises:

stirring a Bayer process lye solution which contains caustic lye and dissolved aluminum oxide to obtain a slightly supersaturated solution and subsequently heating said solution to a sufficient temperature to convert it to an undersaturated state, adding to said undersaturated solution a predetermined amount of gibbsite alumina trihydrate crystals to form a suspension and maintaining said suspension for a sufficient time to convert said crystals to modified particles, said crystals having a mean crystal diameter of between about 40 and 100 microns and having substantially sharp edges and rough surfaces, said modified particles having a mean particle diameter of less than about 35 microns and less than about 0.1 percent by volume of said particles having a diameter of less than about 2 microns, said particles further having substantially rounded edges and smooth surfaces.

4,340,580

METHOD OF PRODUCING HYDROGEN

Masahiro Suzuki, 423, Yasaka, Kakegawa-shi, Shizuoka, Japan

Continuation-in-part of Ser. No. 93,660, Nov. 13, 1979, Pat. No. 4,269,818. This application Apr. 16, 1981, Ser. No. 254,580

Claims priority, application Japan, Nov. 13, 1978, 53-139632

Int. Cl.³ C01B *1/07*

U.S. Cl. 423—657 **5 Claims**

1. A method for producing hydrogen by the reaction between magnesium and water, which comprises the steps of:

immersing a magnesium electrode and a second electrode in an aqueous electrolyte solution, and applying a direct or an alternating current voltage between said electrodes for activating the magnesium electrode until the surface of the magnesium electrode turns blackish in color and is thereby activated so that the magnesium electrode will rapidly react with water over an extended period of time to generate a large volume of hydrogen; and then immersing the activated magnesium electrode in sea water or an aqueous neutral salt solution, without applying a voltage thereto, and thereby generating hydrogen.

4,340,581

PROCESS FOR THE IMMUNOLOGICAL DETERMINATION OF BASAL MEMBRANE MATERIAL AND NEW BASAL MEMBRANE SUITABLE THEREFOR

Rupert Timpl, Krailing, Fed. Rep. of Germany, assignor to Max-Planck-Gesellschaft zur Forderung der Wissenschaften e.V., Gottingen, Fed. Rep. of Germany

Filed May 30, 1980, Ser. No. 154,735

Claims priority, application Fed. Rep. of Germany, Jun. 11, 1979, 2923583

Int. Cl.³ G01N *33/56, 33/58;* **C07G** *7/00*

U.S. Cl. 424—1 **18 Claims**

1. Process for the immunological determination of basal membrane material in body fluids, which process comprises incubating a tagged basal membrane antigen selected from tagged laminin, tagged laminin fragment P1 and tagged basal membrane fragment 7S collagen, with a first antibody specific to said antigen in the presence of the body fluid sample to be tested, whereby antigens in the body fluid sample will compete with said tagged antigen for said antibody, separating the antigen-antibody-complex formed, and determining the quantity of tagged antigen contained in the complex or in the separated liquid as a measure of the basal membrane material contained in said body fluid.

4,340,582

ERYTHROMYCIN BASE TABLETS

Douglas C. Kriesel, Lake Bluff, and Shashi P. Mehta, Libertyville, both of Ill., assignors to Abbott Laboratories, North Chicago, Ill.

Filed Jan. 15, 1981, Ser. No. 225,214

Int. Cl.³ A61K *9/36, 31/71*

U.S. Cl. 424—35 **9 Claims**

1. An enteric coated erythromycin base tablet consisting essentially of a tablet core and a tablet coating, said core consisting essentially of 250 parts of erythromycin base in the form of its dihydrate, 35 to 100 parts of a highly water soluble orally nontoxic ingestible salt, and 40 to 165 parts of lubricants, binders, diluents and disintegrants, and said core being coated from a solution consisting essentially of 16 to 25 parts of hydroxypropyl methylcellulose phthalate in an ethanol/water mixture containing pigments, plasticizers, dyes and flavoring agents, said core forming an integral and impervious envelope over said core, and, if desired, a further, outer and clear coating applied from a solution containing said hydroxypropyl methylcellulose phthalate, plasticizer and flavoring components in an ethanol/water mixture.

4,340,583

HIGH FLUORIDE COMPATIBILITY DENTIFRICE ABRASIVES AND COMPOSITIONS

Satish K. Wason, Churchville, Md., assignor to J. M. Huber Corporation, Locust, N.J.

Division of Ser. No. 41,952, May 23, 1979, Continuation of Ser. No. 862,384, Dec. 20, 1977, abandoned. This application Sep. 23, 1980, Ser. No. 189,880

Int. Cl.³ A61K *7/16, 7/18*

U.S. Cl. 424—52 **8 Claims**

1. A toothpaste composition, comprising:

A. from about 6% to 35% by weight of a precipitated silica abrasive material which is a precipitated amorphous silicon dioxide prepared from fresh water alkali metal silicate by acidulation, which has been intimately reacted with a solution of an hydroxide or an oxide or a salt or a sufficiently water soluble form of an alkaline earth metal so as to have present about 10-300 parts per million of alkaline earth

metal ions in said amorphous silicon dioxide, said amorphous silicon dioxide exhibiting a Radio-active Dentin Abrasion value of at least 40, an average particle size of from about 5 to 15 microns in diameter, a pack density of about 0.24 to 0.55 grams per milliliter, an oil absorption of about 70–95 ccs/100 grams, a BET surface area of about 100–250 m^2/g, and a percent loss on ignition of about 4–6%;

B. from about 0.01% to 3.0% by weight of a water-soluble, fluorine containing material which yields fluoride ions in aqueous solution;

C. from about 3% to 55% by weight of a humectant;

D. from about 0.2% to 2.0% by weight of a binding agent; and

E. from about 15% to 80% by weight of water;

said composition providing a pH of from about 4 to 8 when slurried with water in a 3:1 water/composition weight ratio.

4,340,584

THERAPEUTIC DENTIFRICES IN UNLINED CONTAINER AND METHODS

Satish K. Wason, Churchville, Md., assignor to J. M. Huber Corporation, Locust, N.J.

Division of Ser. No. 946,678, Sep. 28, 1978, Pat. No. 4,244,707, which is a division of Ser. No. 826,901, Aug. 24, 1977, Pat. No. 4,159,280, which is a continuation-in-part of Ser. No. 723,345, Sep. 15, 1976, abandoned. This application Dec. 1, 1980, Ser. No. 211,896

Int. Cl.[3] **A61K** *7/16, 7/18;* **B65D** *81/24, 81/26*

U.S. Cl. 424—52 **7 Claims**

1. A therapeutic dentifrice toothpaste composition contained in and compatible with the interior surface of an unlined aluminum tube containing said composition and which will not stain or otherwise corrode said unlined aluminum tube, said dentifrice composition comprising about 0.1 to 0.2 weight percent of a fluoride therapeutic agent, a solid phase, a substantially pure demineralized deionized water liquid phase, a binder to prevent separation of the liquid and solid phases, a silica abrasive, and a fluoride corrosion and staining preventing amount of an alkaline earth metal ion, said amount being from 50 ppm to less than 2000 ppm, which amount is insufficient to stoichiometrically interfere with fluoride availability in said dentifrice toothpaste, said alkaline earth metal ion being essentially provided to said dentifrice toothpaste composition as an essential component of the silica abrasive composition, said silica abrasive having an RDA value of between 200 and 400, being selected from the group consisting of amorphous precipitated silica, sodium aluminosilicates, silica xerogels, and mixtures thereof, said silica abrasive having been pretreated with a water soluble alkaline earth metal compound which will provide said alkaline earth metal ions which are selected from the group consisting of calcium ion, magnesium ion, strontium ion, and mixtures thereof, said silica abrasive being used at loadings of at least about 15–30 weight percent in the dentifrice composition and said abrasive composition being prepared by contacting said alkaline earth metal compound with said silica abrasive prior to incorporation into said dentifrice toothpaste composition.

4,340,585

SALIFIED ANIONIC RESIN FOR CHOLESTEROL AND LIPID LOWERING

Valerio Borzatta; Manlio Cristofori, both of Bologna, and Angelo Brazzi, Budrio, all of Italy, assignors to Alfa Farmaceutici, S.p.A., Bologna, Italy

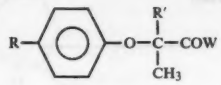
Filed Dec. 11, 1979, Ser. No. 102,614

Claims priority, application Italy, Dec. 21, 1978, 3631 A/78

Int. Cl.[3] **A61K** *31/74;* **C08F** *8/10, 8/30, 8/32*

U.S. Cl. 424—79 **5 Claims**

1. A non-toxic cholestyramine resin, said resin being capable of binding itself permanently to the biliary acids, said resin being salified with an acid corresponding to the general formula:



wherein:

R′ represents a hydrogen atom, an alkyl group having 1 to 3 carbon atoms, a hydroxyalkyl group having 1 to 3 carbon atoms,

R represents a chlorine atom or a group selected from the group consisting of p-chlorobenzoyl, p-bromobenzoyl and p-fluorobenzoyl,

W represents a group selected from the group consisting of OH, —N(R‴)—CH(R″)—$(CH_2)_n$—COOH and O—CH_2—COOH wherein n represents a number from 0 to 5, R″ represents a hydrogen atom, a benzyl, a phenyl or a phenyl substituted with an OH group, a lower alkyl, a lower alkoxyl or a lower hydroxyalkyl group and R‴ represents a hydrogen atom or a lower alkyl.

5. A pharmaceutical preparation orally administrable to lower the cholesterol and lipid content in the blood, containing as an active substance the salified resin of any one of claims 1–4 in an effective dosage amount therefor, together with adjuvants.

4,340,586

PHARMACEUTICAL PREPARATION FOR TREATING DISORDERS OF THE SKIN

Adam Bekierkunst, and Haim A. Cohen, both of Alcharisi 21, Jerusalem, Israel

Filed Feb. 18, 1977, Ser. No. 769,960

Int. Cl.[3] **A61K** *39/02*

U.S. Cl. 424—92 **3 Claims**

1. A method for the treatment of a disorder of the skin of a human or other mammal selected from the group consisting of mycosis fungoids, basal cell carcinoma, *keratosis solaris,* Bowen squamous cell carcinoma, *Kaposi sarcoma, leishmaniasis diffusa,* adenocarcinoma and melanoma, which comprises

disinfecting the affected area and adjacent areas of the skin,

removing the stratum corneum by repeated applications of pressure sensitive type,

applying an effective amount of ointment, consisting essentially of an amount sufficient of killed mycobacteriae BCG and cord factor (trehalose-6,6-dimycolate) to effectively treat mycosis fungoids, basal cell carcinoma, *Kaposi sarcoma, leishmaniasis diffusa,* adenocarcinoma and melanoma, in a vehicle suitable for topical pharmaceutical application and capable of efficiently maintaining the active ingredients at the desired location on the skin for 24 to about 48 hours, said amount sufficient of the active ingredients constituting from 1.5 mg to 75 mg per gram of said ointment of said killed mycobacteriae and from 0.07 mg to 0.15 mg of said cord factor per gram of ointment,

covering same with an impervious wrap, and

leaving same in place for a period of time of about 24 to 48 hours.

4,340,587

REPELLANT COMPOSITION AND METHOD OF USE

Steve J. Antonik, Mt. Prospect, Ill., assignor to National Repellents, Inc., Mt. Prospect, Ill.

Filed Dec. 13, 1979, Ser. No. 103,341

Int. Cl.[3] **A01N** *63/02*

U.S. Cl. 424—95 **4 Claims**

1. A composition for introduction into a seawater environment of pinfish for reducing normal physical activity of the pinfish and for disrupting and adversely affecting the capability of the pinfish to function normally.

said composition comprising an aqueous dispersion of whole lyophilized ground fireflies, and said fireflies are in the seawater in a concentration of at least about one firefly per liter of seawater.

4,340,588

BRUCELLOSIS VACCINE FOR CATTLE CONTAINING MYCOLATE ESTERS OF TREHALOSE

Lynn F. Woodard, Lewiston, Id., assignor to Research Corporation, New York, N.Y.

Continuation-in-part of Ser. No. 134,767, Mar. 28, 1980, abandoned. This application Mar. 11, 1981, Ser. No. 239,507

Int. Cl.³ A61K *39/10, 31/72*

U.S. Cl. 424—92 **4 Claims**

1. A vaccine comprising 0.1 mg/ml to 5 mg/ml of whole, killed *Brucella abortus* 45/20 cells together with a mono- or diester of trehalose as an adjuvant wherein the esterifying moiety is a mycolic acid containing from 30 to 90 carbon atoms in an immunologically acceptable carrier, the weight ratio of cells to adjuvant being from 1:1 to 20:1.

3. A method of immunizing cattle against *Brucella abortus* infection which comprises administering to cattle to be immunized an immunologically effective dose of a vaccine comprising 0.1 mg/ml to 5 mg/ml of whole killed *Brucella abortus* 45/20 cells together with a mono- or diester of trehalose as an adjuvant wherein the esterifying moiety is a mycolic acid containing from 30 to 90 carbon atoms in an immunologically acceptable carrier, the weight ratio of cells to adjuvant being from 1:1 to 20:1.

4,340,589

ANTITHROMBIN PREPARATION AND PROCESS FOR THE PRODUCTION THEREOF

Yahiro Uemura, Hirakata; Midori Nagatomo, Takatsuki; Satoshi Funakoshi, Katano, and Tadakazu Suyama, Kyoto, all of Japan, assignors to The Green Cross Corporation, Osaka, Japan

PCT No. PCT/JP79/00154, § 371 Date Feb. 18, 1981, § 102(e) Date Feb. 17, 1981, PCT Pub. No. WO80/02798, PCT Pub. Date Dec. 24, 1980

PCT Filed Jun. 18, 1979, Ser. No. 237,125

Int. Cl.³ A61K *35/14*

U.S. Cl. 424—101 **15 Claims**

1. A freeze-dried antithrombin preparation containing an effective quantity of antithrombin-III and an effective quantity of at least one member selected from the group consisting of albumin, urokinase, gelatin, mannitol, heparin, glycine and lysine as stabilizer therefore.

4,340,590

METHOD FOR REDUCING OR INHIBITING ECCHYMOSIS IN SKIN TISSUES WITH INORGANIC SELENIUM COMPOSITIONS

Joseph R. Levitt, New York, N.Y. (now by change of name Joseph R. Lundy), assignor to Lundy Research Laboratories, Inc., New York, N.Y.

Continuation-in-part of Ser. No. 821,156, Aug. 2, 1977, abandoned. This application Oct. 18, 1979, Ser. No. 86,391

Int. Cl.³ A61K *33/38, 33/04*

U.S. Cl. 424—132 **7 Claims**

1. A therapeutic method for reducing or inhibiting ecchymosis in the skin tissue of humans and for accelerating the recovery thereof, said method comprising administering to the host a composition comprising

(i) a water soluble inorganic selenium compound capable of being absorbed by the tissue to be treated of the host, said inorganic compound selected from salts wherein the selenium is present in the form of selenate or selenite anions and the cation is pharmaceutically acceptable and

(ii) a non-toxic pharmaceutically acceptable carrier or diluent therefor;

said composition being administered so as to provide the equivalent of 0.05 mg–1.0 mg of elemental selenium per day to the host in single or multiple dose form by means selected from oral, topical, parenteral, and intravenous infusion.

4,340,591

PROCESS FOR OBTENTION OF THE OVOMUCOID FRACTION AND AN OVOMUCOID EXTRACT OF QUAIL EGG, PRODUCTS SO OBTAINED AND THEIR USE AS A MEDICAMENT

Gerard Lucotte, Le Fete par Arnay-le-Duc, and Jerome Talamon, Paris, both of France, assignors to Societe Coturnix, Paris, France

Filed May 6, 1980, Ser. No. 147,125

Claims priority, application France, May 7, 1979, 79 11523

Int. Cl.³ A61K *37/00*

U.S. Cl. 424—177 **15 Claims**

1. A process for obtaining the ovomucoid fraction of quail egg which comprises;

(1) adding trichloroacetic acid in solution in acetone to quail egg white;

(2) separating the supernatant from the reaction medium;

(3) adding acetone to the supernatant so obtained;

(4) dissolving the precipitate obtained in step (3) in water and dialyzing the solution obtained against water;

(5) filtering the resulting solution through a membrane having a cut-off of about 10,000;

(6) then subjecting the filtered solution to chromatographic separation and recovering all the fractions having antitrypsin activity;

(7) effecting an acid hydrolysis of the fraction obtained in step (6), in the presence of pepsin; and

(8) recovering the fraction that has antitrypsin activity by filtration on gel.

12. A quail egg ovomucoid extract, characterized in that it has a molecular weight of about 14,000, its terminal N is valine, and in that it has a single ring in immunoelectrophoresis and possesses no tryptophan.

4,340,592

NUTRIENT COMPOSITIONS AND METHOD OF ADMINISTERING THE SAME

Siamak A. Adibi, 1154 Wightman St., Pittsburgh, Pa. 15217

Continuation-in-part of Ser. No. 130,309, Mar. 14, 1980, abandoned. This application Jan. 26, 1981, Ser. No. 227,127

Int. Cl.³ A61K *37/00*

U.S. Cl. 424—177 **12 Claims**

1. A nutrient composition comprising an aqueous solution containing from one to 20 weight percent of at least two oligopeptides selected from the class consisting of dipeptides and tripeptides,

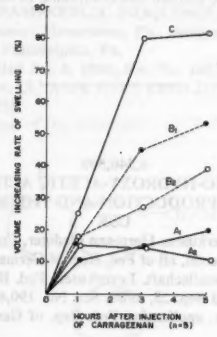
wherein the said oligopeptides include a single glycine unit which is the N-terminal amino acid residue of the oligopeptide.

4,340,593
Patent Not Issued For This Number

4,340,594
FAT EMULSION CONTAINING STEROID

Yutaka Mizushima, Kawasaki; Kazumasa Yokoyama, Toyonaka; Kiichiro Nabeta, Sennan; Noboru Yamada, Ashiya, and Tadakazu Suyama, Tsuzuki, all of Japan, assignors to The Green Cross Corporation, Osaka, Japan

Filed May 6, 1981, Ser. No. 260,607
Claims priority, application Japan, May 15, 1980, 55-64875
Int. Cl.³ A61K *31/56*
U.S. Cl. 424—238 **6 Claims**



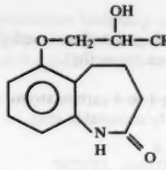
1. A fat emulsion containing a steroid having an anti-inflammatory activity comprising an effective quantity of a steroid having an anti-inflammatory activity selected from the group consisting of esters of hydrocortisone with fatty acids of 6 to 22 carbon atoms, esters of prednisoline with fatty acids of 6 to 22 carbon atoms, and esters of dexamethasone with fatty acids of 6 to 22 carbon atoms, 5 to 50% (W/V) of soybean oil, a phospholipid in a weight ratio of 1–50 to 100 of said soybean oil, and a proper quantity of water.

4,340,595
AMINOPROPANOL DERIVATIVES OF 6-HYDROXY-2,3,4,5-TETRAHYDRO-1H-1-BENZAZEPIN-2-ONE AND PHARMACEUTICAL FORMULATIONS CONTAINING THE SAID COMPOUNDS

Albrecht Franke, Wachenheim; Dieter Lenke, Ludwigshafen; Josef Gries, Wachenheim, and Hans D. Lehmann, Hirschberg-Leutershausen, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Fed. Rep. of Germany

Continuation of Ser. No. 91,200, Nov. 7, 1979, abandoned. This application Jan. 19, 1981, Ser. No. 226,485
Claims priority, application Fed. Rep. of Germany, Nov. 18, 1978, 2850078
Int. Cl.³ A61K *31/55*; C07D *223/16*
U.S. Cl. 424—244 **4 Claims**

1. A compound of the formula (I)



(I)

where R is alkyl of 3 to 6 carbon atoms, which is branched at the carbon adjacent to the amino nitrogen, but-3-yn-2-yl or 3-methyl-but-1-yn-3-yl, and its physiologically acceptable addition salts with acids.

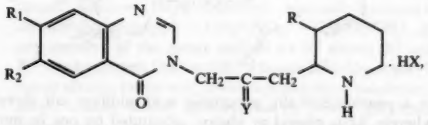
4. A therapeutic agent having 8-sympatholytic activity which comprises: a pharmacologically acceptable carrier and-/or diluent and a therapeutically effective amount of a compound of the formula I as described in claim **1**.

4,340,596
PREPARATIONS FOR THE TREATMENT OF THEILERIOSIS AND THEIR USE

Eberhard Schein, Berlin, Fed. Rep. of Germany, assignor to Hoechst Aktiengesellschaft, Frankfurt am Main, Fed. Rep. of Germany

Filed Aug. 21, 1980, Ser. No. 180,016
Claims priority, application Fed. Rep. of Germany, Aug. 23, 1979, 2934069
Int. Cl.³ A61K *31/505*
U.S. Cl. 424—251 **3 Claims**

1. A preparation for the treatment of theilerosis comprising an amount, effective against theilerosis, of a quinazolinone compound of the formula:



wherein

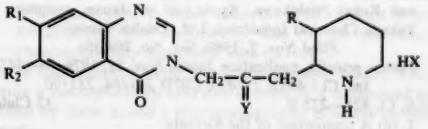
R_1 and R_2 independently are halogen, trifluoromethyl alkoxy having 1 to 4 carbon atoms, or methyl,

Y is oxygen, sulfur, or =OH,

R is hydroxy or acyloxy having 1 to 4 carbon atoms, and

X is a lactate, aceturate, or acetate anion, together with a pharmaceutically acceptable carrier therefor.

3. A method for combatting theilerosis in animals which comprises administering to said animals an amount, effective against theilerosis, of a quinazolinone compound of the formula



wherein

R_1 and R_2 independently are halogen, trifluoromethyl alkoxy having 1 to 4 carbon atoms, or methyl,

Y is oxygen, sulfur, or =NOH,

R is hydroxy or acyloxy having 1 to 4 carbon atoms, and

X is an anion of a physiologically acceptable acid.

4,340,597

1-SUBSTITUTED-4-ARYL-1,2,5,6-TETRAHYDRO AND HEXAHYDROPYRIDINES

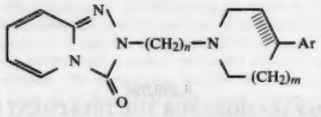
Elijah H. Gold, West Orange; Joel G. Berger, Verona, and Wei K. Chang, Livingston, all of N.J., assignors to Schering Corporation, Kenilworth, N.J.

Filed Apr. 13, 1981, Ser. No. 253,137

Int. Cl.[3] **C07D** *471/04;* **A61K** *31/435*

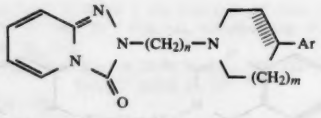
U.S. Cl. 424—256 **20 Claims**

1. A compound of the formula



or a pharmaceutically acceptable acid addition salt thereof wherein Ar is phenyl or phenyl substituted by one or more members of the group consisting of halogeno, (C_1–C_5) lower alkyl, halogeno lower alkyl, hydroxyl and (C_1–C_5) lower alkoxyl; m is an integer of zero or 1, n is an integer of 2 or 3; and the dotted line represents an optional double bond.

15. A method of eliciting an analgesic response from a warm blooded animal suffering with pain which comprises administering to the animal an effective analgesic amount of a compound of the formula



or a pharmaceutically acceptable acid addition salt thereof wherein Ar is phenyl or phenyl substituted by one or more members of the group consisting of halogeno, (C_1–C_5) lower alkyl, halogeno lower alkyl, hydroxyl and (C_1–C_5) lower alkoxyl; m is an integer of zero or 1, n is an integer of 2 or 3; and the dotted line represents an optional double bond.

4,340,598

HYPOTENSIVE IMIDAZOLE DERIVATIVES

Yoshiyasu Furukawa, Toyonaka; Shoji Kishimoto, Takarazuka, and Kohei Nishikawa, Kyoto, all of Japan, assignors to Takeda Chemical Industries, Ltd., Osaka, Japan

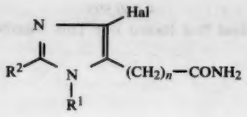
Filed Nov. 5, 1980, Ser. No. 204,356

Claims priority, application Japan, Nov. 12, 1979, 54-146729

Int. Cl.[3] **A61K** *31/415;* **C07D** *233/64, 233/90*

U.S. Cl. 424—273 R **12 Claims**

1. (6) A compound of the formula:



wherein

R^1 is lower alkyl, or phenyl-C_{1-2}alkyl which may be substituted with halogen or nitro;

R^2 is lower alkyl, lower cycloalkyl, or phenyl which may be substituted with halogen, lower alkyl, lower alkoxyl or di(lower alkyl)amino,

Hal is halogen and

n is 0, 1 or 2;

or a pharmaceutically acceptable salt thereof.

12. A method for producing hypotensive activity in a mammal, which comprises administering to said mammal a hypotensively effective amount of a compound of claim **2**, **3**, **5**, **6**, **8**, **9** or **10**.

4,340,599

PHOSPHONO-HYDROXY-ACETIC ACID AND ITS SALTS, THEIR PRODUCTION AND THEIR MEDICINAL USE

Folker Lieb, Leverkusen; Hermann Oediger, Cologne, and Gert Streible, Wuppertal, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

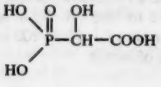
Filed Sep. 25, 1980, Ser. No. 190,697

Claims priority, application Fed. Rep. of Germany, Oct. 12, 1979, 2941384

Int. Cl.[3] **A61K** *31/66;* **C07F** *9/38*

U.S. Cl. 424—212 **4 Claims**

1. A method of combating viral infections in warmblooded animals which comprises administering to the animals an antivirally effective amount of a phosphononhydroxy-acetic acid compound of the formula



(I)

either alone or in admixture with an inert pharmaceutical carrier or in the form of a medicament.

4,340,600

RENAL DILATING METHODS AND COMPOSITIONS USING 4-(3,4-DIHYDROXYPHENYL)-1,2,3,4-TETRAHYDROISOQUINOLINES

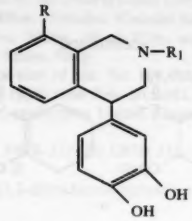
L. Martin Brenner, Havertown, Pa., and Joe R. Wardell, Jr., Voorhees Township, Camden County, N.J., assignors to SmithKline Corporation, Philadelphia, Pa.

Filed May 22, 1980, Ser. No. 152,252

Int. Cl.[3] **A61K** *31/47;* **C07D** *217/16*

U.S. Cl. 424—258 **19 Claims**

1. A method of producing renal vasodilation in a patient in need thereof comprising administering to said patient internally an effective nontoxic quantity selected from the range of 50 mg to 1 g of a compound of the formula:



in which R is hydroxy, hydrogen, halo or methylthio and R_1 is hydrogen or methyl, one of its O-lower alkanoyl esters, or one of its pharmaceutically acceptable acid addition salts.

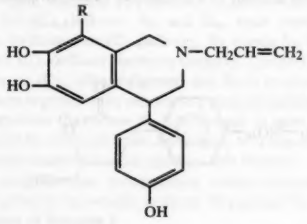
4,340,601

DOPAMINERGIC ISOQUINOLINES

L. Martin Brenner, Havertown, Pa., assignor to SmithKline Corporation, Philadelphia, Pa.

Filed Jul. 8, 1980, Ser. No. 166,933
Int. Cl.[3] A61K *31/47;* **C07D** *217/16*
U.S. Cl. 424—258 **7 Claims**

1. A compound of the structure:



in which R is halo; tri-O-lower alkanoyl esters or pharmaceutically acceptable acid addition salts thereof.

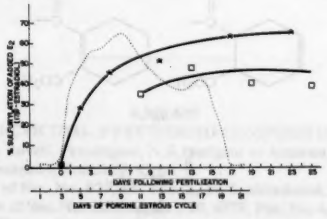
7. A pharmaceutical composition in dosage unit form having renal dilating activity comprising a nontoxic, effective quantity of a compound of any one of claims **1**, **2**, **3**, **4** or **5** combined with a pharmaceutical carrier.

4,340,602

COMPOSITIONS INHIBITING ESTROGEN SULFOTRANSFERASE ACTIVITY

Samuel C. Brooks, Detroit, Mich., assignor to Wayne State University, Detroit, Mich.

Filed Oct. 18, 1978, Ser. No. 952,592
Int. Cl.[3] A01N *45/00;* **A61K** *31/56*
U.S. Cl. 424—238 **24 Claims**



1. A unit dosage pharmaceutical composition for the prevention of implantation of a blastocyst in the epithelial uterine lining of a mammal female and possessing a total per unit dosage of an accurate predetermined amount of an estrogen sulfotransferase inhibiting compound such that said dosage is administered daily for from 3 to 9 days in quantities each day of from 0.1 to 500 mg of the compound.

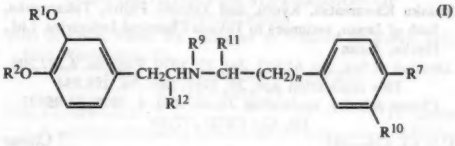
4,340,603

NOVEL INOTROPIC PRODRUGS

Nicholas S. Bodor; Kenneth B. Sloan, both of Gainesville, Fla., and Stefano A. Pogany, Lawrence, Kans., assignors to INTERx Research Corporation, Lawrence, Kans.

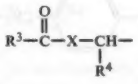
Filed Aug. 13, 1980, Ser. No. 177,824
Int. Cl.[3] A61K *31/265;* **C07C** *69/76, 69/74;* **C09F** *5/08*
U.S. Cl. 424—301 **28 Claims**

1. A compound selected from the group consisting of (a) those having the structural formula (I):

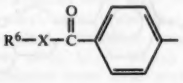


(I)

wherein R^1 and R^2 are independently selected from the group consisting of hydrogen, R^3 —CO— and



wherein X is O or S; R^3 is straight or branched chain alkyl having from 1 to 20 carbon atoms; aryl having from 6 to 10 carbon atoms; cycloalkyl having from 3 to 8 carbon atoms; alkenyl having from 2 to 20 carbon atoms; cycloalkenyl having from 4 to 8 carbon atoms; alkynyl having from 2 to 20 carbon atoms; or aralkyl, alkaryl, aralkenyl, aralkynyl, alkenylaryl, alkynylaryl, loweracyloxyalkyl, or carboxyalkyl, wherein alkyl, aryl, alkenyl and alkynyl are as defined above; R^4 is hydrogen, lower acyl, cyano, halololoweralkyl, carbamyl, loweralkylcarbamyl, diloweralkylcarbamyl, $—CH_2ONO_2$, $—CH_2OCOR^3$, or any member of the group defined by R^3 above; R^7 and R^{10} are hydrogen, OR^1 or OR^8 wherein R^8 is lower alkyl, lower alkoxy, lower acyl, lower acyloxy, halo, halolower-alkyl, cyano, lower alkoxycarbonyl, lower alkylthio, amino, nitro, loweralkylamino, diloweralkylamino, carboxyl, carbamyl, loweralkylcarbamyl, diloweralkylcarbamyl or



wherein R^6 is hydrogen or alkyl having from 1 to 10 carbons; R^9 is hydrogen, lower alkyl, $COCF_3$, $COOC(CH_3)_3$, $COOCH_2C_6H_5$, or other N-protective group; R^{11} and R^{12} are hydrogen or methyl; and n is 1 or 2; with the proviso that at least one R^1, R^2 or OR^1, when R^7 and/or R^{10} is OR^1, must be $R^3COXCH(R^4)$- or $R^3COXCH(R^4)O$-, respectively; and (b) the non-toxic, pharmaceutically acceptable salts thereof.

9. A cardiotonically effective composition of matter comprising a cardiotonically effective amount of a compound as defined by claim **1**, and a pharamaceutically effective carrier therefor.

4,340,604

METHOD FOR INHIBITING THE LOWERING OF IMMUNOLOGICAL FUNCTION AND AGENT THEREFOR

Tadao Aoki; Hideo Miyakoshi; Yoshihei Hirasawa, all of Niigata, and Yasuo Nishii, Tokyo, all of Japan, assignors to Chugai Seiyaku Kabushiki Kaisha, Tokyo, Japan

Filed Aug. 11, 1980, Ser. No. 176,641
Claims priority, application Japan, Aug. 10, 1979, 54/101210
Int. Cl.³ A01N *45/00*
U.S. Cl. 424—236 **3 Claims**

1. A method for inhibiting the lowering of immunological function of patients under artificial blood dialysis which comprises administering 1α-hydroxycholecaliferol to said patient.

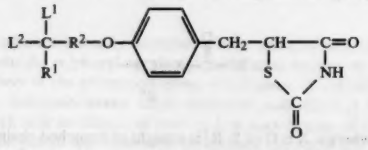
4,340,605

THIAZOLIDINE DERIVATIVES

Yutaka Kawamatsu, Kyoto, and Takeshi Fujita, Takarazuka, both of Japan, assignors to Takeda Chemical Industries, Ltd., Osaka, Japan

Division of Ser. No. 62,512, Jul. 27, 1979, Pat. No. 4,287,200. This application Apr. 29, 1981, Ser. No. 258,554
Claims priority, application Japan, Aug. 4, 1978, 53-95673
Int. Cl.³ C07D *277/04*
U.S. Cl. 424—263 **7 Claims**

1. A thiazolidine derivative of the general formula:



wherein R^1 is pyridyl or thiazolyl; R^2 means a bond or a lower alkylene group; L^1 and L^2 are the same or different and each is hydrogen, lower alkyl or L^1 and L^2 are combined to form an alkylene group.

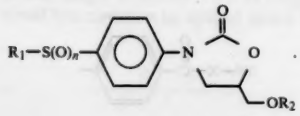
4,340,606

3-(P-ALKYLSULFONYLPHENYL)OXAZOLIDINONE DERIVATIVES AS ANTIBACTERIAL AGENTS

Robert B. Fugitt, Newark, and Raymond W. Luckenbaugh, Wilmington, both of Del., assignors to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Filed Oct. 23, 1980, Ser. No. 199,698
Int. Cl.³ C07D *263/38*; A61K *31/42*
U.S. Cl. 424—272 **8 Claims**

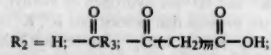
1. A compound of the formula:

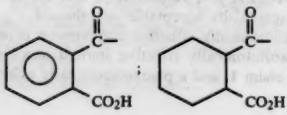


I

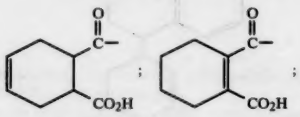
where

R_1=CH_3, C_2H_5, CF_2H, CF_3 or CF_2CF_2H;

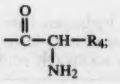




-continued



or



R_3=aryl or C_1–C_{12} alkyl;

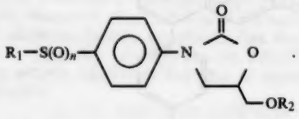
R_4=H, C_1–C_5 alkyl, —CH_2OH, —CH_2SH, aryl or aralkyl;

n=1 or 2; and

m=2 or 3;

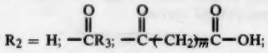
and pharmaceutically acceptable acid and base salts thereof.

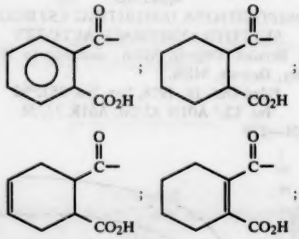
6. A method for alleviating bacterial infection in a mammal which comprises administering to the mammal an effective antibacterial amount of a compound of the formula:



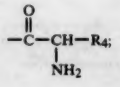
where

R_1—CH_3, C_2H_5, CF_2H, CF_3 or CF_2CF_2H;





or



R_3=aryl or C_1–C_{12} alkyl;

R_4=H, C_1–C_5 alkyl, —CH_2OH, —CH_2SH, aryl or aralkyl;

n=1 or 2; and

m=2 or 3;

and pharmaceutically acceptable acid and base salts thereof.

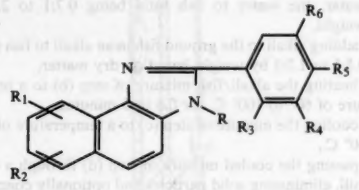
4,340,607

ANTIMICROBIAL 3H-NAPHTHO[1,2-d]IMIDAZOLES

Emilio Toja, Milan; Amedeo Omodei-Sale, Voghera, and Domenica Selva, Milan, all of Italy, assignors to Gruppo Lepetit S.p.A., Milan, Italy

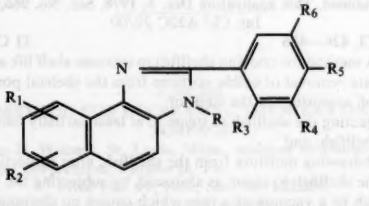
Continuation-in-part of Ser. No. 104,490, Dec. 17, 1979, abandoned. This application Feb. 20, 1981, Ser. No. 236,468
Claims priority, application United Kingdom, Dec. 21, 1978, 49690/78
Int. Cl.³ A61K *31/415*; C07D *235/02, 405/02*
U.S. Cl. 424—273 B 4 Claims

1. 3H-naphtho[1,2-d]imidazole derivative having the following formula



wherein R stands for (C_{1-6})alkyl, (C_{3-6})alkenyl, (C_{3-6})alkynyl or (C_{3-7})cycloalkyl, R_1 and R_2 each independently may represent hydrogen, halogen, (C_{1-4})alkyl, (C_{1-4})alkylthio, (C_{1-4})alkoxy or halo(C_{1-4})alkoxy, R_3 and R_4, each independently represents hydrogen or (C_{1-4})alkoxy, R_5 stands for hydrogen, (C_{1-4})alkyl, (C_{3-4})alkoxy, carboxymethoxy, [carbo(C_{1-4})alkoxy]methoxy or (C_{2-4})alkanoylamino and R_6 is hydrogen or R_4 and R_6 taken together may represent a methylenedioxy radical, with the proviso that when R_5 is hydrogen at least one of R_3 and R_4 must be different from hydrogen; or a non-toxic pharmaceutically acceptable acid addition salt thereof.

3. An antimicrobial composition which comprises from about 0.1 percent by weight to about 10 percent by weight of a compound of formula I



I

wherein R, R_1, R_2, R_3, R_4, R_5, and R_6 are as defined in claim 1, or a salt therewith of a pharmaceutically acceptable acid in admixture with a topical pharmaceutical carrier.

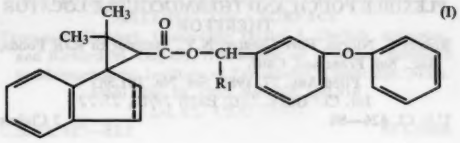
4,340,608

INSECTICIDAL PYRETHROID COMPOSITIONS

James B. Lovell, Pennington, N.J., assignor to American Cyanamid Company, Stamford, Conn.

Division of Ser. No. 874,305, Feb. 2, 1978, abandoned, which is a division of Ser. No. 623,864, Oct. 20, 1975, Pat. No. 4,087,523. This application Jan. 7, 1980, Ser. No. 110,418
Int. Cl.³ A01N *37/10, 37/34, 47/10*
U.S. Cl. 424—300 5 Claims

1. An insecticidal composition comprising (i) from about 0.1 to 3 ppm of a phenoxybenzyl ester of a spirocarboxylic acid having the structural formula:



(I)

wherein R_1 is hydrogen or cyano and represents a single or double bond, or the optical or geometric isomers thereof, and (ii) from about 1 to 30 ppm of of 1-napthyl-N-methylcarbamate and (iii) an inert diluent.

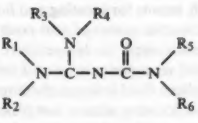
4,340,609

AMIDINOUREA DERIVATIVE VETERINARY COMPOSITIONS FOR SUPPRESSION OF PARASITEMIA

Billy J. Chou, Paoli, Pa., assignor to William H. Rorer, Inc., Fort Washington, Pa.

Filed Jan. 2, 1980, Ser. No. 109,038
Int. Cl.³ A61K *31/17*
U.S. Cl. 424—322 17 Claims

1. A method of treating animals for the suppression of filariasis which comprises administering to an infected animal in need of such treatment an effective amount of an amidinourea of the formula:



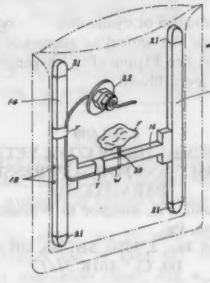
wherein one of R_1 or R_5 is phenyl, phenyl in which one or more of the hydrogens is substituted by halo, lower alkyl, halo lower alkyl, nitro, amino, acylamino, lower alkoxy, hydroxy, aryl lower alkoxy, acyloxy, cyano, halo lower alkoxy, or lower alkyl sulfonyl; aralkyl, pyridyl, or pyridyl having one or more of the hydrogens replaced by lower alkyl, lower alkoxy, halo, halo lower alkyl, amino, nitro, hydroxy, cyano, carboxyl or lower alkyl sulfonyl; and the other of R_1 or R_5 is hydrogen, lower alkyl, lower alkoxy, lower alkenyl, cyclo lower alkenyl, cyclo lower alkyl, aralkyl, lower alkynyl, halo alkyl, hydroxy lower alkyl, lower alkoxy lower alkyl, cyano lower alkyl, amino lower alkyl, mono or di-lower alkyl amino lower alkyl, carbamoyl lower alkyl, mono or di-carbamoyl lower alkyl, lower alkoxy carbamoyl lower alkyl, aralkoxy carbamoyl lower alkyl, acyl lower alkyl, alkyl sulfonyl or aralkyl sulfonyl; R_2 and R_6 are each independently selected from the group consisting of hydrogen, lower alkyl, lower alkoxy, lower alkenyl, cyclo lower alkenyl, cyclo lower alkyl, aralkyl, lower alkynyl, halo alkyl, hydroxy lower alkyl, lower alkoxy lower alkyl, cyano lower alkyl, amino lower alkyl, mono or di-lower alkyl amino lower alkyl, carbamoyl lower alkyl, mono or di-carbamoyl lower alkyl, lower alkoxy carbamoyl lower alkyl, aralkoxy carbamoyl lower alkyl, acyl lower alkyl, alkyl sulfonyl or aralkyl sulfonyl; and when R_1 is phenyl, phenyl substituted as above, aralkyl, pyridyl or pyridyl substituted as above, R_5 together with R_6 and the nitrogen to which R_5 and R_6 are attached may form a 5 or 6 membered heterocyclic ring which may include 0 to 2 additional hetero atoms which may be either oxygen, nitrogen or sulfur; and when R_5 is phenyl, phenyl substituted as above, R_1 and R_2 together with the nitrogen to which they are attached may be a 5 or 6 membered heterocyclic ring which may include 0 to 2 additional hetero atoms which may be either oxygen, nitrogen or sulfur; and R_3 and R_4 are each independently hydrogen, lower alkyl, lower alkoxy, lower alkenyl, lower alkynyl, cyclo lower alkyl or aralkyl; or a pharmaceutically acceptable salt thereof.

4,340,610

FLEXIBLE POUCH AND THERMOCOUPLE LOCATOR THEREFOR

Robert L. Nioras, Port Chester, N.Y., assignor to RJR Foods, Inc., San Francisco, Calif.

Filed Aug. 27, 1980, Ser. No. 181,587
Int. Cl.[3] G01K *7/02*; B65B *29/08, 25/22*
U.S. Cl. 426—88 2 Claims



1. In a device for measuring temperature within a flexible retortable pouch having two side seals, a top seal, and a bottom seal and being filled with a food product, said device comprising said flexible retortable pouch, a thermocouple contained within said pouch, means for locating and holding said thermocouple at the geometric center of said pouch, a cable for connecting said thermocouple to temperature recording means, and means adapted to communicate said cable through a wall of said pouch without fluid leakage, the improvement wherein said thermocouple locating means comprises:

a rigid frame contained within the pouch and substantially in the form of the letter "H", having,

(a) two elongated side members;

(b) a cross-bar member extending between said side members and being rigidly mounted at points spaced from the point equidistant from the ends of each of said side members, said rigid frame including said two side members and said crossbar member being of sufficient dimensions relative to said pouch sufficient to cause the rigid frame to fit snugly in said flexible pouch to positively locate the frame and prevent movement of it relative to the pouch; and,

(c) means for securing said thermocouple to said rigid frame, such that said thermocouple is fixedly positioned at the geometric center of said flexible pouch.

4,340,611

PROCESS FOR REMOVING SOYBEAN HULLS

Howard F. McKinney, Edwardsville, Ill.; David R. Gardner, and Frederick C. Wear, both of St. Louis, Mo., assignors to McDonnell Douglas Corporation, St. Louis, Mo.

Filed Jul. 18, 1980, Ser. No. 170,096
Int. Cl.[3] A21D *6/00*
U.S. Cl. 426—241 4 Claims

1. A process for removing hulls from soybeans without damaging the grain comprising the steps of placing the soybeans in an atmosphere of reduced pressure, subjecting the beans to microwave energy while the beans are within the atmosphere of reduced pressure, removing a portion of the moisture from the beans until the moisture content of the soybeans is about 7.46 to about 10% on a wet basis, removing the soybeans from the atmosphere of reduced pressure, the temperature of the soybeans leaving the reduced pressure atmosphere being at least 110° F. and less than 160° F., immediately cracking the hulls of the hot soybeans without tempering, and removing the hulls from the hot beans.

4,340,612

PROCESS FOR SPINNING FISH PROTEINS

Lars Askman, Marysville, Ohio; Pierre Wetzel, Vevey, and Alain Isely, Lausanne, both of Switzerland, assignors to Societe d'Assistance Technique pour Produits Nestle S.A., Lausanne, Switzerland

Filed Mar. 20, 1981, Ser. No. 245,999
Claims priority, application Switzerland, Mar. 31, 1980, 2521/80
Int. Cl.[3] A23J *3/00*
U.S. Cl. 426—276 11 Claims

1. A process for preparing fibres from fish proteins which comprises successively:

(a) grounding whole fish or fish pieces in the presence of water, the water to fish ratio being 0.7:1 to 2.5:1 by weight,

(b) adding alkali to the ground fish in an alkali to fish ratio of 0.5:1 to 1.5:1 by weight based on dry matter,

(c) heating the alkali/fish mixture of step (b) to a temperature of 60° to 100° C. for 0.5 to 3 minutes,

(d) cooling the mixture of step (c) to a temperature of 35° to 60° C.,

(e) passing the cooled mixture of step (d) through a colloid mill, eliminating solid particles and optionally concentrating to obtain a protein solution having a dry matter content of 6 to 10% by weight,

(f) injecting the alkaline solution of step (e) through a spinneret into an aqueous acid medium having a pH of 0.7 to 0.9 and an ionic strength of 2.0 to 2.2 thereby to coagulate the proteins to fibres,

(g) washing the fibres of step (f),

(h) setting the fibres of step (g) by heating, and

(i) neutralising the fibres.

4,340,613

METHOD OF COOKING SHELLFISH

Michael R. P. Moore, 11724 Lovejoy St., Silver Spring, Md. 20902

Continuation-in-part of Ser. No. 833,133, Sep. 14, 1977, abandoned. This application Dec. 5, 1978, Ser. No. 966,631
Int. Cl.[3] A22C *29/00*
U.S. Cl. 426—456 11 Claims

1. A method for cooking shellfish to increase shelf life and to facilitate removal of edible portions from the skeletal portions thereof, consisting of the steps of:

subjecting the shellfish to steam to at least partially cook the shellfish; and

withdrawing moisture from the shellfish, after subjection of the shellfish to steam as aforesaid, by subjecting the shellfish to a vacuum at a rate which causes no disruption to the structure of the skeletal portions.

4,340,614

STRINGENTLY SODIUM-RESTRICTED DIETETIC SALT AND ITS PREPARATION

Claus H. Pich, and Thomas Moest, both of Moorrege, Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Fed. Rep. of Germany

Filed May 28, 1981, Ser. No. 267,870
Claims priority, application Fed. Rep. of Germany, Jun. 6, 1980, 3021298
Int. Cl.[3] A23L *1/237*
U.S. Cl. 426—649 4 Claims

1. A stringently sodium-restricted dietetic salt, consisting of a mixture of from 60 to 85% by weight of potassium chloride, from 10 to 30% by weight of potassium adipate, from 2 to 5% by weight of potassium tartrate, from 0.5 to 2% by weight of potassium glutamate, from 0.5 to 2% by weight of adipic acid and a total of from 0.004 to 0.06% by weight of potassium inosate and/or potassium guanylate.

4,340,615

APPARATUS FOR ANALYSIS OF ABSORBED GASES

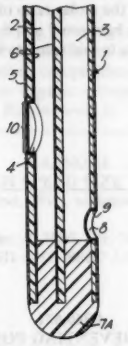
Brian Goodwin, Cheshire, and Peter Middleton, London, both of England, assignors to The Medishield Corporation Limited, London, England

Filed Jun. 3, 1980, Ser. No. 155,912

Claims priority, application United Kingdom, Jun. 7, 1979, 7919942

Int. Cl.³ A61B 5/00

U.S. Cl. 427—2 4 Claims



1. A method of manufacturing a device for use in the analysis of absorbed gases in liquids, comprising the steps of taking a flexible plastics material tube with an aperture in its wall; sheathing the exterior surface of at least that portion of the tube which includes said aperture with a layer of bio-compatible gas-permeable material; and coating the interior surface of that area of said sheathing layer which overlies said aperture with a thin layer of gas-permeable material, the permeability of which is significantly less than that of the sheathing layer.

4,340,616

METHOD FOR DECREASING THE WEAR ON A SURFACE

James D. Weinert, St. Louis, Minn., assignor to United States Steel Corporation, Pittsburgh, Pa.

Filed Feb. 19, 1980, Ser. No. 122,534

Int. Cl.³ B05D 3/14

U.S. Cl. 427—47 9 Claims

1. A method for decreasing the wear on a surface, due to relative movement and contact of said surface with a fluid medium of abrasive particles, the weight percent of said particles amounting to a significant part of the total weight of said medium, such contact being for a period of time and such relative movement being of a degree, sufficient to cause excessive wear on said surface, which comprises:

providing said surface, with a magnetic attraction of sufficient magnitude to attract an amount of magnetic particles which will provide a sacrificial layer thereon, consisting essentially of such magnetic particles, said layer having a thickness, (a) of at least a monolayer of such magnetic particles and (b) effective to materially decrease the wear on the surface underlying said sacrificial layer, and

maintaining said magnetic attraction during said contact, whereby the particles in said sacrificial layer which are eroded or dislodged may be replenished by new magnetic particles from said fluid stream to provide said materially decreased wear.

4,340,617

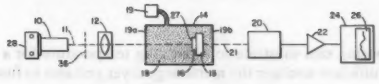
METHOD AND APPARATUS FOR DEPOSITING A MATERIAL ON A SURFACE

Thomas F. Deutsch, Cambridge; Daniel J. Ehrlich, Arlington, and Richard M. Osgood, Winchester, all of Mass., assignors to Massachusetts Institute of Technology, Cambridge, Mass.

Filed May 19, 1980, Ser. No. 150,816

Int. Cl.³ C23C 13/00

U.S. Cl. 427—53.1 53 Claims



1. Apparatus for depositing from a fluid phase, a layer of a surface compatible material onto a selected surface of a substrate body comprising

a deposition chamber,

means for supporting said body in said chamber,

a laser source of energy operating at a wavelength shorter than 700 nm,

an optical system for focusing said energy toward said selected surface at a position adjacent said selected surface, said optical system further directing said energy onto said selected surface, and

means for introducing a fluid medium into said chamber adjacent to the said surface, at least one component of said fluid medium being absorptive at said desired frequency for effecting photodecomposition of said at least one component of the medium in said fluid phase at a photodissociation rate which is linear with power, for depositing said surface-compatible material product of said photodecomposition onto said body surface in a selected pattern.

37. A method for selectively depositing a surface-compatible film on a surface of a substrate body comprising the steps of

supporting said substrate body in an enclosed chamber,

exposing at least said substrate surface of said body in said chamber to a gaseous environment containing at least one photolytically decomposable compound,

directing a laser source of energy onto said surface,

focusing said laser source of energy at a position adjacent to said surface, said source having an energy output at a wavelength to effect photolytic decomposition of said one photolytically decomposable compound in the gaseous phase at a photodissociation rate which is linear with power, and

photolytically decomposing said one compound to effect deposition of said surface-compatible film onto said surface in a selected pattern.

4,340,618

PROCESS FOR FORMING REFRACTORY METAL LAYERS ON CERAMIC SUBSTRATE

Michael A. Fury, Fishkill, and Ananda H. Kumar, Wappingers Falls, both of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Mar. 20, 1981, Ser. No. 245,762

Int. Cl.³ H05K 3/12

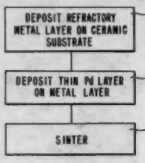
U.S. Cl. 427—96 12 Claims

1. A process of forming a glass free surface on refractory metallurgy pads on ceramic substrate, comprising

depositing by screening techniques a refractory metallurgy layer on a ceramic substrate, the metal of said layer selected from the group consisting of Mo, W and Ta,

depositing a thin layer of Pd on at least the surface of said metallurgy layer of a thickness that is approximately

40–50 angstroms per each mil thickness of said metallurgy layer,



exposing said substrate to a sintering temperature for a time sufficient to sinter the metallurgy layer and also to fuse the layer to said substrate.

4,340,619

PROCESS FOR THE PREPARATION OF POLY(DISILYL)SILAZANE POLYMERS AND THE POLYMERS THEREFROM

John H. Gaul, Jr., Midland, Mich., assignor to Dow Corning Corporation, Midland, Mich.

Filed Jan. 15, 1981, Ser. No. 225,274
Int. Cl.³ B05D *3/02*
U.S. Cl. 427—228 **89 Claims**

86. A method for preparing an article coated with ceramic which consists of

(A) coating a substrate with an R'_3SiNH— containing silazane polymer,

(B) heating the coated substrate in an inert atmosphere or in a vacuum to an elevated temperature of at least 750° C. until the coating is converted to a silicon carbide ceramic material, whereby a silicon carbide-containing ceramic coated article is obtained, which silazane polymer is obtained by a process which consists of contacting and reacting in an inert, essentially anhydrous, atmosphere, a chlorine-containing disilane or a mixture of chlorine-containing disilanes, wherein the number of diorgano-substituted silicon atoms does not exceed the number of monoorgano-substituted silicon atoms, of the general formula

$$(Cl_aR_bSi)_2$$

with a disilazane having the general formula

$$(R_3Si)_2NH$$

at a temperature in the range of 125° C. to 300° C. while distilling by-produced volatile products, wherein

R is vinyl, an alkyl group of 1–3 carbon atoms or the phenyl group;

R′ is vinyl, hydrogen, an alkyl group of 1–3 carbon atoms or the phenyl group;

a has a value of 0.5–3;

b has a value of 0–2.5 and the sum of a+b is equal to three.

4,340,620

METHOD FOR ACTIVATING TITANIUM SURFACES FOR SUBSEQUENT PLATING WITH METALLIC COATINGS

Götz Mielsch; Rolf Dunker, and Martin Thoma, all of Munich, Fed. Rep. of Germany, assignors to MTU Motoren-und Turbinen-Union, Munich, Fed. Rep. of Germany

Filed Feb. 26, 1981, Ser. No. 238,627
Claims priority, application Fed. Rep. of Germany, Mar. 4, 1980, 3008314
Int. Cl.³ C23B *5/62*
U.S. Cl. 427—292 **4 Claims**

1. A method for activating titanium surfaces for subsequent plating with metallic coatings, said method comprising:

(a) wet peening the titanium surface to be plated using fine-grain Al_2O_3,

(b) pickling said surface with a fluoridic solution at room temperature for several minutes, said fluoridic solution being a solution of nitric acid and hydrofluoric acid,

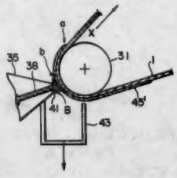
(c) activating said surface with a solution consisting essentially of chromium acid or hexavalent chromium compounds, hydrofluoric acid, and arsenic or antimony at temperatures of 35° to 100° C. for 15 to 50 minutes, the molar ratio of fluorine to arsenic or antimony being between 6 and 7 and the molar ratio of chromium to arsenic or antimony being between 3 and 6, the concentration of antimony or arsenic in said solution being between 0.1 and 2.0 Mol/l.

4,340,621

METHOD FOR PREVENTING FORMATION OF A HEAVY LIQUID LAYER ON A WEB AT A COATING START POSITION

Takeshi Matsumiya, and Minoru Minoda, both of Minami-ashigara, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Filed Feb. 27, 1980, Ser. No. 125,054
Claims priority, application Japan, Mar. 6, 1979, 54-25749; Mar. 13, 1979, 54-28913
Int. Cl.³ B05D *3/00, 3/12*
U.S. Cl. 427—294 **8 Claims**



5. A method for applying a coating liquid on a web being transported continuously by a coating section having a hopper-type coating means including a bead stabilizing suction chamber comprising the steps of:

(a) applying a thin layer of pretreatment liquid having a low in viscosity upon said web in the region of a coating-liquid coating start position;

(b) transporting said web into said coating section;

(c) applying said coating liquid upon said thin layer of pretreatment liquid on said web with a pressure in said suction chamber lower than that employed in steady-state operation; and

(d) returning the pressure reduction of said suction chamber back to that appropriate for the steady-state operation to continue the coating operation with said coating liquid, said pretreatment liquid and said pressure being selected such that heavy coating of said web at said coating start position with said coating liquid is prevented by cooperation of an expansive wetting effect of said thin layer of pretreatment liquid and reduced pressure in said suction chamber.

4,340,622

PROCESS FOR APPLYING A COATING TO THAT PART OF A STRUCTURE IN A MARINE ENVIRONMENT WHICH PROJECTS ABOVE THE SURFACE OF WATER

Leendert A. Kik, Wassenaar; Pieter H. J. Schuurink, Noordwijk-Binnen, and Marinus J. De Vries, Lisse, all of Netherlands, assignors to AKZO NV, Arnhem, Netherlands

Filed Nov. 19, 1979, Ser. No. 95,567

Claims priority, application Netherlands, Nov. 20, 1978, 7811399

Int. Cl.³ B05D 3/00

U.S. Cl. 427—299 9 Claims

1. A process for applying a coating to that part of a structure which projects above the surface of a body of water, characterized in that a coating composition containing an organic binder dispersed in an organic solvent is applied to the substrate while water is flowing over it.

4,340,623

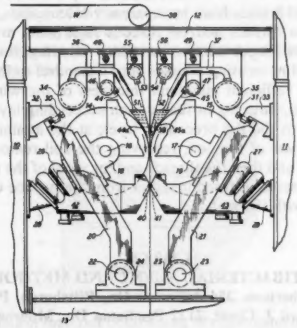
HIGH SPEED SIZE PRESS

Edgar J. Justus, Beloit, Wis., assignor to Beloit Corporation, Beloit, Wis.

Filed Dec. 8, 1980, Ser. No. 214,138

Int. Cl.³ B05D 3/12; B05C 3/02, 11/02, 3/12

U.S. Cl. 427—361 10 Claims



8. A method for applying a sizing composition to a paper web which comprises:

passing said web into the nip between a pair of counter-rotating rolls,

delivering a liquid sizing composition between the rolls and the web passing therebetween to thereby form a pond of sizing composition on each side of the traveling paper web, and

immersing a flexible baffle element into each pond between said web and the roll which applies sizing composition to the side of said web facing said roll to a distance sufficient to reduce substantially the violent turbulence in said pond.

4,340,624

ELECTROCHROMIC DISPLAY DEVICE

Akio Yamashita, and Shirow Asakawa, both of Kawasaki, Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

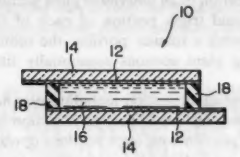
Filed Oct. 15, 1980, Ser. No. 197,328

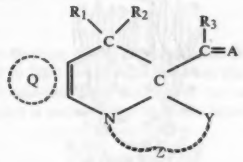
Claims priority, application Japan, Oct. 17, 1979, 54-134577

Int. Cl.³ C09K 3/34; G02F 1/13

U.S. Cl. 428—1 8 Claims

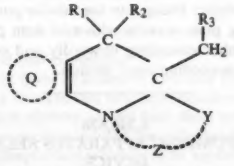
1. An electrochromic display device comprising a pair of electrodes which are disposed with a specified space therebetween, at least one of said electrodes being transparent, and a non-aqueous electrolytic solution filled in the space and comprised of a styryl-like compound and a supporting electrolyte dissolved in a solvent, said styryl-like compound being represented by the formula:





in which Q represents a benzene ring with or without substituents and/or a condensed ring, R_1 and R_2 independently represent a lower alkyl group, a hydroxyalkyl group or an alkoxyalkyl group, R_3 represents hydrogen, an alkyl group, an alkoxy group, a halogen, a nitrile group, an aromatic group or a phenoxy group, Y represents oxygen or sulfur, Z represents an alkylene group of 2 to 4 carbon atoms, with or without an alkyl substituents, required to complete a ring structure together with

and A represents a residue resulting from a condensation reaction of the methyl group or methylene group in the 2-position of a precursor indoline derivative of the formula:



where , R_1, R_2, R_3, Y and Z have the same meanings as defined above, respectively, with a member selected from the group consisting of aromatic aldehydes, heterocyclic alcehydes, aromatic nitroso compounds and heterocyclic nitroso compounds.

4,340,625

ARTIFICIAL AQUARIUM PLANT

Allan H. Willinger, Englewood, N.J., assignor to Willinger Bros., Inc., Englewood, N.J.

Filed Nov. 17, 1980, Ser. No. 207,342

Int. Cl.³ A41G 1/00; A47G 7/00

U.S. Cl. 428—17 13 Claims

1. An artificial aquarium plant comprising:

a base member having a receptacle, and a plant member upstandingly insertable in said receptacle for support by said base member;

said plant member including a plurality of plant sections nestingly interfitting within each other, each plant section having a respective trunk portion from which extends respective stem portions, said trunk portion of each of said plant sections being disposed in said receptacle of said

base member in an assembled condition of said plant sections;

said trunk portion of an innermost plant section being a body member, said trunk portion of each of the other plant sections being a tubular portion, the tubular portions of succeeding plant sections sequentially fitting into each other;

said innermost plant section including two matingly engaging opposing section halves, each section half including a semi-oval portion with stem portions upwardly extending therefrom;

a connecting pin extending perpendicularly from an inner surface of one semi-oval portion and a cooperating receiving bore provided in an inner surface of the other semi-oval portion, said connecting pin being disposed in said receiving bore to matingly join said section halves together to define said body member; and

said body member fitting into the tubular portion of the first succeeding plant section with said stem portions of said body member extending upwardly and outwardly from said first succeeding plant section.

4,340,626

DIFFUSION PUMPING APPARATUS SELF-INFLATING DEVICE

Marion F. Rudy, 19001 Vintage St., Northridge, Calif. 91324

Continuation of Ser. No. 903,055, May 5, 1978, abandoned. This application Jul. 10, 1980, Ser. No. 168,284

Int. Cl.³ A43B *13/20;* **B32B** *1/06;* **E04B** *1/34;* **E04G** *11/04*

U.S. Cl. 428—35 **18 Claims**

1. A self inflating device, comprising a sealed chamber of preformed shape, at least a portion of said chamber being of a layer of permeable elastomeric sheet material surrounded by ambient air at atmosheric pressure, said chamber being inflated initially, after having been shaped, with a gaseous medium comprising an inert, non-polar, large molecule gas having a low solubility coefficient, said elastomeric material having characteristics of relatively low permeability with respect to said gas to resist diffusion of said gas therethrough from said chamber and of relatively high permeability with respect to the ambient air surrounding said chamber to permit diffusion of said ambient air through said elastomeric material into said inflated chamber to provide a total pressure in said chamber which is the sum of the partial pressure of the gas in said chamber and the partial pressure of the air in said chamber, the diffusion rate of said gas through said elastomeric material being substantially lower than the diffusion rate of nitrogen through said elastomeric material.

4,340,627

WOUND AND SINTERED VITREOUS SILICA ARTICLE AND METHOD OF MAKING

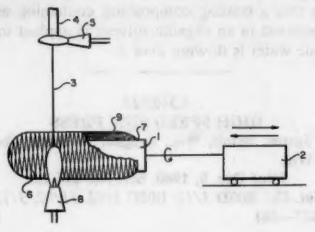
Heinz Herzog, Karlstein; Heinrich Mohn, Gelnhausen; Karl-Albert Schulke, Neuberg, and Holger Grzybowski, Bruchköbel, all of Fed. Rep. of Germany, assignors to Heraeus Quarzschmelze GmbH, Hanau am Main, Fed. Rep. of Germany

Filed Aug. 28, 1980, Ser. No. 182,155

Claims priority, application Fed. Rep. of Germany, Aug. 31, 1979, 2935198

Int. Cl.³ C03B *23/00;* **B32B** *17/02*

U.S. Cl. 428—36 **14 Claims**



1. In a method for the manufacture, of porous bodies, especially hollow bodies, from transparent vitreous silica, in which viteous silica threads and/or vitreous silica wool are bonded together, the improvement including winding the threads and/or wool in crossing courses onto a mandrel to form a coil and, after a sufficient minimum thickness of the winding has been reached, sintering or fusing each succeeding layer during its winding to the the preceding layer; at the attainment of a given thickness of the coil, removing the coil removed from the mandrel and then the threads and/or wool of the minimum layer are sintered or fused together from the surface which lay in contact with the mandrel.

4,340,628

ANTIBACTERIAL AGENT AND METHOD

John R. Gilbertson, 354 Jefferson Dr., Pittsburgh, Pa. 15228, and Richard J. Crout, 2122 Pendleton Dr., Monroeville, Pa. 15146

Division of Ser. No. 6,347, Jan. 25, 1979, Pat. No. 4,209,533. This application Nov. 26, 1979, Ser. No. 97,405

Int. Cl.³ A61K *7/16, 31/045*

U.S. Cl. 424—49 **4 Claims**

1. A method of inhibiting growth of bacteria comprising exposing said bacteria to an effective concentration of poly-unsaturated long-chain alcohol selected from the group consisting of linolenyl alcohol and linoleyl alcohol,

providing said alcohol is an orally or locally administerable product, and

providing said alcohol in toothpaste.

4,340,629

HIGH DENSITY INFORMATION DISC

Louis J. Hillenbrand, Columbus; Joseph R. Preston, Radnor, and David A. Berry, Columbus, all of Ohio, assignors to RCA Corporation, New York, N.Y.

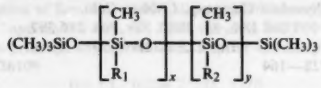
Filed Jun. 12, 1981, Ser. No. 273,241

Int. Cl.³ B32B *3/02*

U.S. Cl. 428—64 **6 Claims**

1. In a high density information record adapted for use with a playback stylus to effect recovery of signals occupying a bandwidth of at least several megahertz when relative motion at a desired rate is established between said record and said stylus, said record comprising a disc of a conductive material containing an information track constituted by a surface relief pattern in said track to accommodate recovery of signals of

said bandwidth upon establishment of relative motion at said rate, said record coated with a methyl alkyl siloxane lubricant having the formula



wherein R_1 and R_2 are alkyl groups of 4–20 carbon atoms, x is an integer of 2–4, y is an integer of 0–2 and wherein the sum of x plus y is 4 or less, the improvement which comprises adding to said lubricant a quinuclidene additive of the formula

wherein R is an electron donating group.

4,340,630

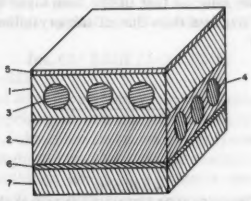
LOW CONDUCTIVITY GAS SEALED BUILDING INSULATION

Francis D. Doty, 1440 Bonner Ave., Columbia, S.C. 29204

Filed Apr. 4, 1980, Ser. No. 137,277

Int. Cl.³ B32B *3/14;* **E04B** *2/00;* **E04C** *2/34;* **B65D** *90/04*

U.S. Cl. 428—74 **10 Claims**



1. Insulation material comprising fibrous material and a low conductivity gas sealed within a casing made from one or more heat sealable laminate sheets, wherein said fibrous material is partially secured to the inner surface of said casing with adhesive means, wherein said laminate sheets each comprise at least two thermoplastic films reinforced longitudinally with glass fibers comprising at least 2% by volume of said thermoplastic films, wherein said films are bonded together orthogonally so as to produce a biaxially reinforced sheet, and wherein one or more ductile low conductivity abrasion resistant thin metallic films are deposited over substantially all of one or both sides of said biaxially reinforced sheets.

4,340,631

THICK-AND-THIN FIBERS AND PRODUCTS THEREFROM

Tadakazu Endo, and Shigemitsu Saitoh, both of Ohtsu, Japan, assignors to Toray Industries, Inc., Tokyo, Japan

Filed Dec. 6, 1979, Ser. No. 100,974

Int. Cl.³ D02G *3/00;* **D03D** *27/00*

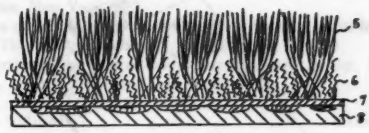
U.S. Cl. 428—89 **9 Claims**

1. Pile fabric having a base fabric and a surface at least partly covered with thick-and-thin fibers whose fineness along the longitudinal direction varies gradually characterized by the following items (a), (b), (c), and (d):

(a) the thick-and-thin recurring length, defined as a longitudinal length along the fiber axis between adjacent thick portions, lies in the range of five to 500 millimeters,

(b) the thick-and-thin ratio, defined as a ratio of the cross-sectioned area of the thick portion to that of the adjacent thin portion, lies in the range of four to 50,

(c) the cross-sectioned area at both the thick portions and those at the thin portions being almost constant, and



(d) the average fineness of the thick-and-thin fiber lies in the range of 0.05 to 2000 deniers and, wherein the thick portion of each thick-and-thin fiber floats over the base fabric and the thin portion is anchored on the base fabric.

4,340,632

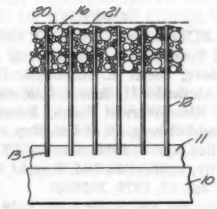
MANUFACTURE OF FLOCK TRANSFERS

Herbert A. Wells, Los Angeles; Walter L. Hochner, San Dimas, and George F. Matacek, Costa Mesa, all of Calif., assignors to International Coatings Co., Inc., Cerritos, Calif.

Filed Nov. 12, 1980, Ser. No. 206,016

Int. Cl.³ B05D *1/16*

U.S. Cl. 428—90 **24 Claims**



1. The method that comprises:

applying a first layer of adhesive to a base sheet;

applying flock fibers to said first layer of adhesive for temporary adhesion thereby to said base sheet with portions of the fibers projecting beyond the adhesive layer;

providing a composition which is to be applied to said fibers and which is premixed before application to the fibers and which includes an emulsion or solution of an adhesive polymer in a carrier liquid and a large number of solid particles of thermoplastic polymer resin intermixed intimately with said emulsion or solution;

applying to said projecting portions of the fibers a layer of said composition containing said solid thermoplastic particles premixed into the composition before application of the composition to the fibers; and

evaporating the liquid from said composition and leaving said second mentioned layer in integrated form on the fibers.

4,340,633

MAT ANCHORING APPARATUS AND METHOD

Edward S. Robbins, Jr., Florence, Ala.

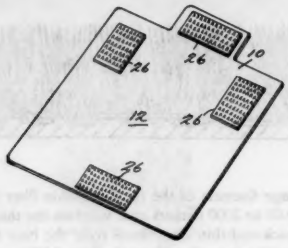
Filed Mar. 14, 1980, Ser. No. 130,337

Int. Cl.³ B32B *3/02, 3/30*

U.S. Cl. 428—99 **4 Claims**

1. A substantially rigid chair mat having a smooth surface on one side thereof, at least two web segments each of which has a surface area that is substantially less than the surface area of said smooth surface of said chair mat and each of said web segments having one face thereof adhesively secured to a

portion of said one side of said chair mat and another face having a plurality of substantially rigid cleat means projecting from said respective web segment with a selected number of said cleat means projecting in a given angular direction from



the other face of said respective web segment while others of said cleat means project in a different angular direction relative to said given angular direction whereby when said chair mat is placed on a carpet surface, said cleat means will restrain movement of said chair mat on the carpet surface.

4,340,634

HEAT-REFLECTIVE WALL-PAPER OR WALL LINER

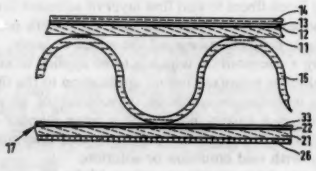
Günter Pusch, Postfach 49, Bannholzweg 12, 6903 Neckargemünd-Dilsberg; Dieter E. Aisslinger, Heidestr. 54, 6222 Geisenheim; Alexander Hoffmann, Heidelberger Str. 24, 6901 Mauer, and Klaus-Werner Pusch, Bannholzweg 12, 6903 Neckargemünd-Dilsberg, all of Fed. Rep. of Germany

Filed Apr. 4, 1980, Ser. No. 137,507

Claims priority, application Fed. Rep. of Germany, Apr. 10, 1979, 2914436; Jul. 17, 1979, 2928848

Int. Cl.³ B32B *3/10, 3/28*

U.S. Cl. 428—134 11 Claims



1. A heat-reflecting wall-cover comprising

(a) a carrier material having

(b) a thin vapor-deposited metal layer deposited on said carrier material, said metal layer and carrier material both being deformed to such a degree so as to produce the formation of hairline cracks eliminating the surface electrical conductivity of the metal layer, and said metal layer serving to reflect infrared radiation in a thickness of less than 30 nanometer,

(c) a veneer protection layer for protecting the metal layer against corrosion and promoting adhesiveness applied onto said metal layer in a thickness ranging from about 0.5 to 2.0 μm, and

(d) a veneer which is substantially transparent in the wavelength range of 4 to 20 μm, but which appears colored in the range λ=0.4 to 0.8 μm, applied onto said veneer protection layer in a thickness of 1.5 to 20 μm.

4,340,635

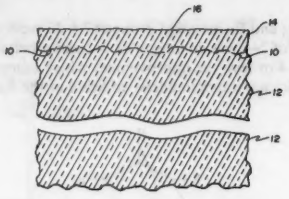
CERAMIC SUBSTRATE FOR FINE-LINE ELECTRICAL CIRCUITRY

Richard A. Langman, Lakewood; Donald R. Giovanini, Arvada, and Michael P. Letzig, Broomfield, all of Colo., assignors to Coors Porcelain Company, Golden, Colo.

Filed Dec. 15, 1980, Ser. No. 216,397

Int. Cl.³ B32B *3/00*

U.S. Cl. 428—164 7 Claims



1. A sintered monolithic ceramic substrate for fine-line electrical circuitry, said substrate comprising a relatively thick base layer with an upper surface having irregularities therein thin upper layer with a relatively planar upper surface, said upper layer filling substantially all the surface irregularities in the upper surface of the base layer, each of said layers containing at least about 90% by weight crystalline material, the crystalline material of said base layer being substantially all an oxide selected from the group consisting of alumina and beryllia and the crystalline material of said upper layer being substantially all the same as that of the base layer but having an average grain size less than that of the crystalline material of said base layer.

4,340,636

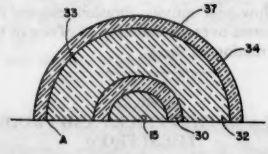
COATED STOICHIOMETRIC SILICON CARBIDE

Harold E. DeBolt, Andover; Raymond J. Suplinskas, Haverhill; James A. Cornie, North Chelmsford; Thomas W. Henze, Lawrence, and Albert W. Hauze, Chelmsford, all of Mass., assignors to Avco Corporation, Wilmington, Mass.

Filed Jul. 30, 1980, Ser. No. 173,773

Int. Cl.³ B32B *7/02, 9/00*

U.S. Cl. 428—215 5 Claims



1. A coated stoichiometric silicon carbide comprising:

a first surface comprising stoichiometric silicon carbide, and a layer of carbon-rich silicon carbide contiguously overlying said first surface, the ratio of silicon to carbon of said layer varies from one at the interface with said first surface to near zero at the interior of the layer to greater than zero at the surface of said layer remote from said interface for enhancing the wettability of the surface to metal matrices while conserving the other properties of the underlying filament.

4,340,637

TWO-COMPONENT MATERIAL

Friedrich Koob, and Gusztav Lang, both of Munich, Fed. Rep. of Germany, assignors to Hilti Aktiengesellschaft, Schaan, Liechtenstein

Continuation of Ser. No. 46,037, Jun. 6, 1979, abandoned. This application Oct. 30, 1980, Ser. No. 202,200

Claims priority, application Fed. Rep. of Germany, Jun. 14, 1978, 2826109

Int. Cl.[3] B32B *27/38, 5/16*

U.S. Cl. 428—220 8 Claims

1. In a two-component kneadable material for gluing, sealing, filling, coating or doweling of a hardenable component and a hardener component, the improvement consisting of said components being separated solely by a thin layer of a finely divided particulate material in the shape of small plates or scales, having an average particle size from about 5 μm to 250 μm, said thin layer being destructible under working conditions and acting as a filler in said final kneadable product.

4,340,638

METALLIZED LABELS

Johannes T. Brugmans, Enkhuizen, Netherlands, assignor to Koninklijke Emballage Industrie Van Leer B.V., Amstelveen, Netherlands

Filed Apr. 7, 1980, Ser. No. 138,054

Claims priority, application Netherlands, Feb. 15, 1980, 8000965

Int. Cl.[3] B32B *15/08, 15/16*

U.S. Cl. 428—323 10 Claims

1. Metallised label for containers such as bottles, coated with a lacquer comprising at least one of a methacrylic homopolymer and a vinyl chloride-vinyl acetate copolymer and comprising 2 to 10 weight % (calculated on the amount of resin in said lacquer) of additives, which do not attack the metal of said labels and which are soluble in an aqueous caustic soda solution, containing 1.5 weight % of the caustic soda, having a temperature of 80° C.

4,340,639

SYNTHETIC PAPER COMPRISING AN OLEFIN-BASED RESIN AND AN ADDUCT

Takashi Toyoda; Yozo Ohba, and Masaaki Yamanaka, all of Ibaraki, Japan, assignors to Oji Yuka Goseishi Co., Ltd., Tokyo, Japan

Filed Jul. 25, 1980, Ser. No. 172,481

Claims priority, application Japan, Jul. 25, 1979, 54-94783

Int. Cl.[3] B32B *27/00, 27/06*

U.S. Cl. 428—338 11 Claims

1. A synthetic paper prepared by stretching a sheet of a composition comprising a thermoplastic resin, comprising an olefin-based resin, and an adduct of melamine and isocyanuric acid or cyanuric acid, wherein said adduct is present in an amount of from 0.5 to 200 parts by weight per 100 parts by weight of the thermoplastic resin, wherein said stretching is to a size of 1.3 times or more the original size of the sheet, in at least one direction at a temperature lower than the melting temperature of the olefin-based resin.

4,340,640

HEAT SEALABLE PACKAGING FILM COMPRISING PROPYLENE POLYMER SUBSTRATE AND A SURFACE LAYER BLEND OF ETHYLENE COPOLYMER AND PROPYLENE COPOLYMER

Milton L. Weiner, Rochester, N.Y., assignor to Mobil Oil Corporation, New York, N.Y.

Division of Ser. No. 82,344, Oct. 5, 1979, Pat. No. 4,291,092. This application Nov. 3, 1980, Ser. No. 202,973

The portion of the term of this patent subsequent to Oct. 27, 1998, has been disclaimed.

Int. Cl.[3] B32B *27/00*

U.S. Cl. 428—349 4 Claims

1. A multiple-layer, heat-sealable film comprising;

(a) a substrate layer consisting essentially of a homopolymer of polypropylene or a copolymer of polypropylene which is blended with up to 40 weight % of a different compatible polyolefin; and

(b) on one of the surfaces of the substrate layer, a surface layer comprising a blend of 76–95 wt. % of a copolymer of ethylene (75–90 mole percent) and a higher olefin having three or more carbon atoms (10–25 mole percent), and 5–24 wt. % of a copolymer of propylene (less than 88 mole percent) and a higher olefin having 4 or more carbon atoms (more than 12 mole percent);

in which said different compatible polyolefin in the substrate corresponds to said surface layer blend.

4,340,641

HEAT SEALABLE PACKAGING FILM COMPRISING PROPYLENE POLYMER SUBSTRATE AND A SURFACE LAYER BLEND OF ETHYLENE COPOLYMER AND PROPYLENE COPOLYMER

Milton L. Weiner, Rochester, N.Y., assignor to Mobil Oil Corporation, New York, N.Y.

Division of Ser. No. 82,344, Oct. 5, 1979, Pat. No. 4,291,092. This application Nov. 3, 1980, Ser. No. 202,974

The portion of the term of this patent subsequent to Oct. 27, 1998, has been disclaimed.

Int. Cl.[3] B32B *27/00*

U.S. Cl. 428—349 4 Claims

1. A multiple-layer, heat-sealable film comprising;

(a) a substrate layer consisting essentially of a homopolymer of polypropylene or a copolymer of polypropylene which is blended with up to 40 weight % of a different compatible polyolefin; and

(b) on one of the surfaces of the substrate layer, a surface layer comprising a blend of 5–95 wt. % of a copolymer of ethylene (1–9.5 mole %) and a higher olefin having 4 or more carbon atoms (99-90.5 mole %), and a 95-5 wt. % copolymer of propylene (less than 80 mole % or greater than 95 mole %) and a higher olefin having 4 or more carbon atoms (greater than 20 mole % or less than 5 mole %);

in which said different compatible polyolefin in the substrate corresponds to said surface layer blend.

4,340,642

SURFACE MODIFIED HOLLOW MICROSPHERES

David I. Netting, Springfield; Bruce D. Spivack, Norristown, and James P. Cunnion, Jr., Bridgeport, all of Pa., assignors to PQ Corporation, Valley Forge, Pa.

Filed Jun. 20, 1980, Ser. No. 161,473

Int. Cl.[3] B32B *5/16;* C03B *19/10*

U.S. Cl. 428—402 5 Claims

1. Water resistant hollow microspheres that have not been exposed to fusion or sintering temperatures, said microspheres being characterized by a weight % ratio of "polysalt" solids to sodium silicate solids of 0.02:1 to 2.0:1, said polysalt being a colloidal inorganic salt of an alkali metal and/or ammonium cations wherein the anion to cation ratio is reduced when the salt is dissolved and becomes hydrolized and said sodium

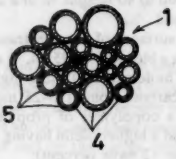
silicate containing 1.5 to 4.0 moles of SiO_2 per mole of Na_2O; a particle size of about 35 to 2000 microns; a bulk density of 2 to 20 lbs/cu ft, less than 7% moisture and 0.1 to 5.0% of a multivalent metal that decreases the solubility of the microsphere in water.

4,340,643

FLUID ANTIOXIDANT

Kozo Sato, 7-12, Minami 3-chome, Yamamoto-cho, Yao-shi, Osaka-fu, Japan

Filed Sep. 22, 1980, Ser. No. 189,940
Int. Cl.[3] B32B *5/16, 17/00*
U.S. Cl. 428—403 3 Claims



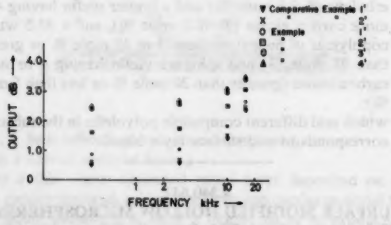
1. A fluid antioxidant for molten metal comprising a mixture of 35–45% by weight of balloons of at least three different diameters, said balloons being made of a member selected from the group consisting of glass and ferrite and being coated with a composition containing 15–25% by weight of powdered silicon, 30–40% by weight of powdered $MgAl_2O_4$, 1% by weight of nonionic surface active agent and 4% by weight of binder, all percentages being based on the weight of the antioxidant.

4,340,644

MAGNETIC RECORDING MEDIUM

Hiroshi Ota, Komoro; Eiji Horigome, Saku, and Hitoshi Azegami, Tobu, all of Japan, assignors to TDK Electronics Co., Ltd., Tokyo, Japan

Filed Nov. 19, 1979, Ser. No. 95,647
Claims priority, application Japan, Nov. 24, 1978, 53-144285
Int. Cl.[3] G11B *5/68*
U.S. Cl. 428—423.7 4 Claims



1. A magnetic recording medium of improved frequency response and running quality comprising a base coated with a magnetic coating material which is a dispersion of magnetic particles in a three resin component binder containing a vinyl chloride-vinyl acetate copolymer resin, a polyester resin together with an amount which is effective to achieve such improvements of up to 50% by weight based on the total weight of the binder of a vinyl alcohol-vinyl chloride-vinyl acetate copolymer resin containing at least 10% vinyl alcohol monomer, and a polyfunctional aromatic isocyanate curing agent.

4,340,645

LEADLESS GLAZES FOR WHITEWARE

Eugene F. O'Conor, Towson, Md., assignor to Mobay Chemical Corporation, Pittsburgh, Pa.

Filed May 11, 1981, Ser. No. 262,086
Int. Cl.[3] C03C *5/00, 9/00, 3/08;* B32B *17/06*
U.S. Cl. 428—428 5 Claims

1. A ceramic frit which, when smelted, consists essentially of:

(a) from 4.0 to 6.5 percent by weight of a member selected from the group consisting of potassium oxide, sodium oxide, lithium oxide and mixtures thereof;
(b) from 7.0 to 12.5 percent by weight of zinc oxide;
(c) from 7.0 to 12.0 percent by weight of calcium oxide;
(d) from 0 to 0.7 percent by weight of magnesium oxide;
(e) from 0 to 5.0 percent by weight of barium oxide;
(f) from 2.0 to 4.0 percent by weight of strontium oxide;
(g) from 2.5 to 6.0 percent by weight of boric oxide;
(h) from 7.0 to 8.5 percent by weight of aluminum oxide;
(i) from 54.0 to 60.0 percent by weight of silica; and,
(j) from 0 to 1.0 percent by weight of zirconium oxide;

all said percents by weight being based on the total weight of components (a) through (j).

4,340,646

MULTI-LAYER REFLECTORS

Akira Ohno; Shitomi Katayama; Suguru Nomura; Susumu Senaha; Suizo Kyo; Susumu Shimomura; Akira Akagami, and Hiroshi Imai, all of Yokohama, Japan, assignors to NHK Spring Co., Ltd. and Yokohama Kiko Co., Ltd., both of Kanagawa, Japan

Filed Nov. 13, 1979, Ser. No. 93,558
Claims priority, application Japan, Nov. 13, 1978, 53/138903
Int. Cl.[3] G02B *5/08;* B32B *17/10, 15/08*
U.S. Cl. 428—429 10 Claims

1. A multi-layer coated reflector which comprises a substrate capable of withstanding a vacuum-deposition operation with a flex resistant thermosetting resin layer capable of withstanding a vacuum-deposition operation coated thereon, a light-reflective metal vacuum-deposited on said substrate, and two protective layers consisting of a vacuum-deposited, light-transmittable inorganic compound layer and a light-transmittable flex resistant thermosetting resin layer coated on said metal layer.

6. A multi-layer coated reflector which comprises a substrate capable of withstanding a vacuum-deposition operation, a light-reflective metal vaccum-deposited directly on said substrate, and two protective layers consisting of a vacuum-deposited, light-transmittable inorganic compound layer and a light-transmittable flex resistant thermosetting resin layer coated on said metal layer.

10. A multi-layer coated reflector as set forth in claims 1, 6, 8, 2 or 3, wherein said light-transmittable inorganic compound is a ceramic.

4,340,647

VINYL GUM CURE ACCELERATORS FOR ADDITION-CURE SILICONE

Richard P. Eckberg, Round Lake, N.Y., assignor to General Electric Company, Waterford, N.Y.

Filed May 22, 1981, Ser. No. 267,091
Int. Cl.[3] B32B *9/00*
U.S. Cl. 428—429 19 Claims

1. A silicone release coating composition comprising:

A. A solventless addition curable composition comprised of:

(i) a diorganopolysiloxane base polymer having up to approximately 20% by weight alkenyl or silanol functional groups and having a viscosity ranging from approximately 50 to approximately 100,000 centipoise at 25° C.;

(ii) a polymethylhydrogen siloxane fluid crosslinking agent having up to approximately 100% by weight

SiH-containing siloxy groups and having a viscosity in the range of approximately 25 to approximately 1000 centipoise at 25° C.;

(iii) an effective amount of precious metal catalyst for facilitating an addition cure hydrosilation reaction between said base polymer and said crosslinking agent at temperatures between, approximately, 90° C. to 300° C.;

(iv) an amount of dialkyl carboxylic ester containing carbon to carbon unsaturation effective to inhibit the precious metal catalyzed hydrosilation cure reaction of said silicone composition at temperatures below the heat cure temperature of said silicone composition, and

B. an amount of dimethylvinyl chainstopped polydimethylmethylvinylsiloxane polymer gum effective for accelerating the cure of said addition curable composition wherein said gum has an average molecular weight of, approximately, 200,000 to 400,000.

4,340,648

POLYVINYL CHLORIDE SUBSTRATES COATED WITH SINGLE PACKAGE WATER-BASED COMPOSITIONS

James A. Conrady, Amherst, and William J. Driscoll, Lorain, both of Ohio, assignors to The B. F. Goodrich Company, Akron, Ohio

Filed Jun. 30, 1980, Ser. No. 164,489
Int. Cl.[3] B32B *27/08;* C08D *1/09;* C08L *31/00*
U.S. Cl. 428—518 5 Claims

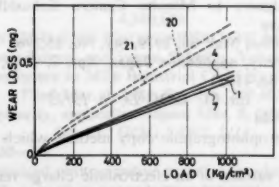
1. Article of manufacture comprising a coating composition adhering to a substrate comprising polyvinyl chloride, said coating composition comprising a reaction product of a binder resin, a scavenging agent which reacts with the anions of the persulfate initiator used to prepare said binder resin, and a sufficient amount of an alkaline neutralizing agent to render said composition neutral to alkaline, said binder resin, being devoid of an unsaturated nitrile residue, is prepared in absence of emulsifier and has Tg of about 20° to 70° C., molecular weight of 50,000 to 600,000, and is a polymer of an ethylenically unsaturated carboxylic acid containing 3 to 10 carbon atoms and an acrylic monomer selected from alkyl acrylates and methacrylates containing 4 to 24 carbon atoms, amount of said carboxylic acid being 0 to 5 parts per 100 parts of said acrylic monomers.

4,340,649

ALUMINUM-TIN BASE BEARING ALLOY AND COMPOSITE

Tamotsu Nara, Toyota, and Soji Kamiya, Nishio, both of Japan, assignors to Taiho Kogyo Co., Ltd., Toyota, Japan

Continuation-in-part of Ser. No. 47,336, Jun. 11, 1979, Pat. No. 4,278,740. This application Apr. 2, 1980, Ser. No. 136,619
Claims priority, application Japan, Jul. 11, 1978, 53-84232; Jul. 11, 1978, 53-84233
The portion of the term of this patent subsequent to Jul. 14, 1998, has been disclaimed.
Int. Cl.[3] B32B *15/04*
U.S. Cl. 428—653 20 Claims



1. An Al-Sn base bearing alloy consisting essentially of 7 to 35 wt. % of Sn; 0.1 to 1.0 wt. % of Cr; 1 to 10 wt. % in total of one or more additive elements selected from the group consisting of W, Ce, Nb, V, Mo, Ba, Ca and Co; from 0 to 3 wt. % in total of Cu and/or Mg; from 0 to 9 wt. % in total of one or more constituents selected from the group consisting of Pb, Bi, Tl, Cd and In; and the balance is Al.

3. A bearing material which is made by applying said bearing alloy as claimed in claim 1 to a backing steel sheet by pressure welding.

4,340,650

MULTI-LAYER COMPOSITE BRAZING ALLOY

Surya Pattanaik, San Jose, and Howard Mizuhara, San Mateo, both of Calif., assignors to GTE Products Corporation, Stamford, Conn.

Filed Jun. 20, 1980, Ser. No. 161,531
Int. Cl.[3] B32B *15/20*
U.S. Cl. 428—675 3 Claims

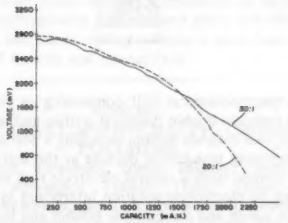
1. A three-layer composite alloy for brazing tungsten carbide to steel, said alloy having a center layer consisting of a metal selected from a group consisting of Fe and Ni and having solid outer layers bonded to said center layer, said outer layers consisting of, in percent by weight, 9.5 Ni-52.5 Cu-38.0 Mn, the ratio of the thickness of each of said outer layers to said center layer being substantially 1 to 2.

4,340,651

CATHODE MATERIAL AND HIGH CAPACITY LITHIUM-IODINE CELLS

William G. Howard, Roseville; John C. Strohkirch, New Brighton, and Marilyn A. Pehl, Anoka, all of Minn., assignors to Medtronic, Inc., Minneapolis, Minn.

Filed Nov. 12, 1980, Ser. No. 205,904
Int. Cl.[3] H01M *4/36, 6/00*
U.S. Cl. 429—101 14 Claims



1. An electrochemical cell comprising: an anode and a cathode, the cathode comprising an initial constituent mixture containing greater than about 97% by weight and less than 100% by weight iodine, balance consisting essentially of poly(2-vinylpyridine), the poly(2-vinylpyridine) being complexed with some of the iodine and wherein the iodine and poly(2-vinylpyridine) mixture is treated by heating below about 150° C. (300° F.).

4,340,652

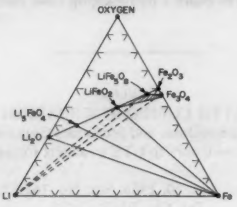
TERNARY COMPOUND ELECTRODE FOR LITHIUM CELLS

Ian D. Raistrick, Menlo Park; Ned A. Godshall, and Robert A. Huggins, both of Stanford, all of Calif., assignors to The United States of America as represented by the United States Department of Energy, Washington, D.C.

Filed Jul. 30, 1980, Ser. No. 173,554
Int. Cl.[3] H01M *4/40, 6/36*
U.S. Cl. 429—112 16 Claims

1. In an electrochemical cell with lithium as the electroactive species thereof, said cell having a positive electrode, a negative electrode and an electrolyte, said electrolyte having a

melting point of about 350° C. to about 500° C., the improvement comprising:



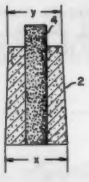
said positive electrode including a ternary compound represented by Li-M-O wherein Li is lithium, M is a transition metal, and O is oxygen.

4,340,653

GALVANIC DRY CELL EMPLOYING A TAPERED CATHODE BOBBIN

Richard C. Adams, Sevierville, Tenn., assignor to Union Carbide Corporation, Danbury, Conn.

Filed Mar. 30, 1981, Ser. No. 249,018
Int. Cl.³ H01M *2/18*
U.S. Cl. 429—133 **10 Claims**



1. An electrochemical cell comprising in combination an anode; a cathode bobbin disposed within and separated from the anode, said cathode bobbin including a porous cathode mix cake comprising manganese dioxide as the active depolarizer material formed with a central electrode rod; and a separator containing an electrolyte solution interposed in the space between the anode and the cathode bobbin and being in contact with the surface of the anode and the surface of the cathode mix cake; the improvement wherein the cathode bobbin has a tapered form with at least a substantial portion of its outer upstanding wall tapered with respect to the longitudinal axis of the bobbin such that its outer diameter varies along the longitudinal axis of the bobbin so that the separator disposed between the outer wall of the tapered bobbin and the inner wall of the anode varied in wall thickness along the longitudinal axis of the bobbin.

4,340,654

DEFECT-FREE PHOTOMASK

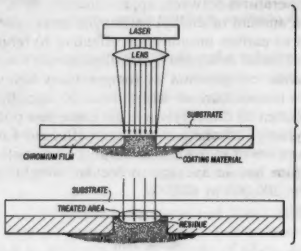
James G. Campi, 709 Blackfoot Ct., San Jose, Calif. 95123

PCT No. PCT/US81/00825, § 371 Date Jul. 16, 1981, § 102(e) Date Jul. 16, 1981, PCT Pub. No. WO81/03628, PCT Pub. Date Dec. 24, 1981
Continuation-in-part of Ser. No. 160,978, Jun. 19, 1980, abandoned. This PCT application Jun. 18, 1981, Ser. No. 290,165
Int. Cl.³ B05D *3/06*
U.S. Cl. 430—5 **5 Claims**

1. A process for repairing transparent defects in a photomask consisting of a defect containing opaque layer overlying a substrate which is transparent to radiant energy, comprising:

applying a coating material which absorbs radiant energy to the opaque layer and over the transparent defect;

directing a beam of radiant energy through the substrate and onto said coating in the defect areas, said beam containing sufficient radiant energy to fuse the material at the interface of the substrate and the coating material such that the fusing operation forms a layer of an opaque mixture obscuring the defect area thereby eliminating the defect in the photomask; and



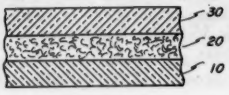
removing from the photomask surface the unfused coating material.

4,340,655

THERMAL AND MECHANICAL BARRIER LAYERS FOR OPTICAL RECORDING ELEMENTS

Kenneth R. Hollister, Pittsford, and Harold T. Thomas, Rochester, both of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Jun. 18, 1980, Ser. No. 160,809
Int. Cl.³ G03E *1/76*; G01D *15/10*; G11B *7/24*
U.S. Cl. 430—14 **18 Claims**



1. In a recording element comprising a support having thereon a heat-deformable optical recording layer and, coated on said recording layer, a substantially transparent thermal and mechanical barrier layer, the improvement wherein said barrier layer comprises a water-soluble polymer having a T_g when dry of at least 100° C.

4,340,656

ELECTROPHOTOGRAPHIC COPYING METHOD WITH RESIDUAL CHARGE ERASING STEP

Kuniki Seino, Aichi, and Yoshihiro Ozaki, Isehara, both of Japan, assignors to Minolta Camera Kabushiki Kaisha, Osaka, Japan

Filed Mar. 30, 1979, Ser. No. 25,296
Claims priority, application Japan, Apr. 7, 1978, 53/41520; Apr. 7, 1978, 53/41521
Int. Cl.³ G03G *13/18, 13/22*
U.S. Cl. 430—48 **4 Claims**

1. An electrophotographic copy method which comprises the steps of:

charging a surface of an electrostatic charge receiving dielectric member with charges of first polarity;

applying a direct current voltage of a second polarity between a photosensitive member, photosensitive to both positive and negative polarities and said dielectric member in face-to-face virtual contact therewith while projecting a light image of an original onto said photosensitive mem-

ber so as to form an electrostatic latent image on the dielectric member; and

applying a direct current voltage of opposite first and second polarities alternately between the photosensitive member and dielectric member while effecting the overall illumination of the photosensitive member simultaneously therewith so as to erase charges of both first and second polarities, the values of said alternately applied voltages being approximately

$$((\chi a+\chi d)/a)(312+6.2\chi a)$$

wherein χa and χd are respectively the capacitive air gap equivalent thicknesses in microns of the air gap between the virtually contacting photosensitive and dielectric members and of the dielectric member itself.

4,340,657

NOVEL RADIATION-SENSITIVE ARTICLES

William Rowe, Westfield, N.J., assignor to Polychrome Corporation, Yonkers, N.Y.

Continuation-in-part of Ser. No. 122,347, Feb. 19, 1980, Pat. No. 4,269,689, which is a continuation-in-part of Ser. No. 2,647, Jan. 11, 1979, Pat. No. 4,214,965, which is a continuation of Ser. No. 600,653, Jul. 21, 1975, abandoned, which is a continuation of Ser. No. 328,678, Feb. 1, 1973, abandoned. This application Mar. 9, 1981, Ser. No. 241,803

The portion of the term of this patent subsequent to May 26, 1998, has been disclaimed.

Int. Cl.³ G03C 1/78, 1/96

U.S. Cl. 430—56 7 Claims

1. A photosensitive article comprising a transparent support upon the first surface of which is applied a composition which is comprised of an admixture of,

I. a polymer which is substantially comprised of the reaction product of:

A. an organic, active hydrogen containing compound, which compound has an average active hydrogen functionality in the range of from 2.0 to about 2.2 with,

B. an excess of an organic polyisocyanate so as to form an isocyanate terminated prepolymer, said prepolymer having been subsequently reacted with,

C. an organic, active hydrogen containing compound, which compound has exactly one active hydrogen; said polymer having a molecular weight of from 5,000 to 50,000 with 0% free isocyanate groups; and,

II. an addition polymerization initiator activatable by actinic light; and,

III. an addition polymerizable ethylenically unsaturated component capable of forming a polymer by photoinitiated polymerization in the presence of said initiator; and,

IV. a natural or synthetic rubber in the amount ratio of rubber to polymer of 90:10 to 10:90 parts by weight; and, to the second surface of which is applied a second photosensitive layer.

4,340,658

LAMINATED ZNO PHOTOSENSITIVE MATERIAL

Eiichi Inoue, Tokyo, and Isamu Shimizu, Yokohama, both of Japan, assignors to Mita Industrial Co., Ltd., Osaka, Japan

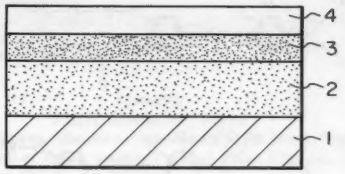
Filed Mar. 4, 1981, Ser. No. 240,403

Claims priority, application Japan, Mar. 8, 1980, 55-28584

Int. Cl.³ G03G 5/087, 5/14

U.S. Cl. 430—58 4 Claims

1. A laminated photosensitive material for electrophotography, which comprises a conductive substrate, an undercoat layer formed of a composition comprising a resin binder having no substantial photoconductivity and photoconductive zinc oxide in an amount of 1 to 20 parts by weight per part by weight of said binder, an intermediate layer formed of a composition comprising a polyvinyl carbazole type photoconductor and photoconductive zinc oxide in an amount of 1 to 20 parts by weight per part by weight of said photoconductor and



a topcoat layer comprised of a polyvinyl carbazole type photoconductor.

4,340,659

ELECTROSTATIC MASTERS

Michael J. Whalen-Shaw, Paw Paw, and Robert J. Thiessen, Richland, both of Mich., assignors to Allied Paper Incorporated, Kalamazoo, Mich.

Continuation-in-part of Ser. No. 827,127, Aug. 24, 1977, abandoned. This application Jun. 29, 1979, Ser. No. 53,168

The portion of the term of this patent subsequent to Oct. 6, 1998, has been disclaimed.

Int. Cl.³ B05D 5/12

U.S. Cl. 430—64 28 Claims

18. An electrostatic master having improved water resistance for lithographic printing comprising

a base;

a barrier coat applied to said base; and

a photoconductive layer containing a photoconductive material and a binder applied to said barrier coat;

said barrier coat consisting essentially of, on a dry weight basis, at least about 50% of a synthetic or natural film-forming hydrophobic polymer and about 2.5–50% plastic particles, said plastic particles being in an at least partially coalesced state in said barrier coat.

4,340,660

TONER FOR DEVELOPMENT HAVING CROSSLINKED POLYMERS

Masashi Kiuchi, Kawasaki; Yoshio Takasu, Tama; Hiroshi Fukumoto, Kawasaki; Takashi Hino, Tokyo; Masaki Uchiyama, Kawasaki, and Yasuo Mitsuhashi, Yokohama, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Apr. 28, 1980, Ser. No. 144,219

Claims priority, application Japan, Apr. 24, 1979, 54-56535

Int. Cl.³ G03 9/08

U.S. Cl. 430—106.6 7 Claims

1. In a toner for development comprising a resin and a colorant, the improvement wherein said resin comprises a first crosslinked vinyl polymer having a gel content of 50–99% and a second crosslinked vinyl polymer having a gel content of 10–0%, said polymers being in a weight ratio ranging from 10:90 to 90:10.

4,340,661

PHOTOGRAPHIC LIGHT SENSITIVE SHEET FOR COLOR DIFFUSION TRANSFER PROCESS

Shigetoshi Ono, and Shinsaku Fujita, both of Minami-ashigara, Japan, assignors to Fuji Photo Film Co., Ltd., Minami-ashigara, Japan

Filed Apr. 3, 1980, Ser. No. 137,025

Claims priority, application Japan, Apr. 5, 1979, 54-41311

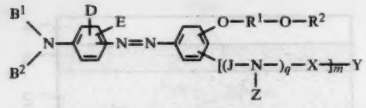
Int. Cl.³ G03C 7/00

U.S. Cl. 430—223 29 Claims

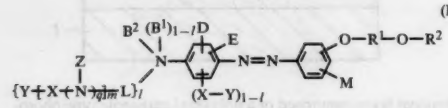
1. A photographic light-sensitive sheet having at least one light sensitive silver halide emulsion layer, at least one of said

emulsion layers having associated therewith an azo dye providing compound represented by the formula (I) or (II):

(I)



(II)



wherein

B^1 represents a hydrogen atom, a substituted or unsubstituted alkyl group, a substituted or unsubstituted aryl group or a substituted or unsubstituted aralkyl group;

B^2 represents a hydrogen atom, a substituted or unsubstituted alkyl group, a substituted or unsubstituted aryl group, a substituted or unsubstituted aralkyl group, an acyl group of the formula $—COR^3$ (where R^3 represents an alkyl group, a substituted alkyl group, an aralkyl group or a substituted or unsubstituted aryl group), an alkylsulfonyl group, a substituted alkylsulfonyl group or an arylsulfonyl group;

D represents a hydrogen atom, an alkyl group, a substituted alkyl group, an alkoxy group, a substituted alkoxy group or a halogen atom;

E represents a hydrogen atom, a trifluoromethyl group, a carboxylic acid ester group of the formula $—COOR^3$ where R^3 is defined above, a nitro group, a halogen atom, an alkyl group, a substituted alkyl group, an alkoxy group, a substituted alkoxy group, an alkylsulfonyl group, a substituted alkoxy group, an alkylsulfonyl group, a substituted alkylsulfonyl group, an arylsulfonyl group, an alkylcarbonyl group, a substituted alkylcarbonyl group, a sulfonamido group of the formula $—NHSO_2R^3$ where R^3 is defined above, a carbonamido group of the formula $—NHCOR^3$ where R^3 is defined above, a sulfamoyl group of the formula $—SO_2NR^4R^5$ (where R^4 represents a hydrogen atom, an alkyl group or a substituted alkyl group and R^5 represents a hydrogen atom, an alkyl group, a substituted alkyl group, an aralkyl group or a substituted or unsubstituted aryl group and further R^4 and R^5 may combine directly or through an oxygen atom to form a ring), or a carbamoyl group of the formula $—CONR^4R^5$ where R^4 and R^5 are defined above;

R^1 represents an alkylene group having 2 or more carbon atoms and the two oxygen atoms bound to R^1 are attached to different carbon atoms;

R^2 represents an alkyl group or a substituted alkyl group;

m represents 1 and q represents 0;

J represents a divalent group, a sulfonyl group or a carbon group;

Z represents a hydrogen atom, an alkyl group or a substituted alkyl group;

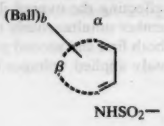
X represents a divalent connecting group of the formula $—A_1-(T)_n-(A_2)_p—$ wherein A_1 and A_2 may be the same or different and each represents an alkylene group or an arylene group; T represents a divalent group selected from an oxy group, a carbonyl group, a carboxyamido group, a carbamoyl group, a sulfonamido group, a sulfamoyl group, a sulfinyl group and a sulfonyl group; and n and p each represents 0 or 1;

l represents 1 or 0;

L represents an alkylene group or an arylene group;

M represents a hydrogen atom, an alkyl group, a substituted alkyl group, an alkoxy group, a substituted alkoxy group, a halogen atom, a sulfamoyl group of the formula $—SO_2NR^4R^5$ or a carbamoyl group of the formula $—CONR^4R^5$ where R^4 and R^5 are defined above; and

Y represents a sulfamoyl group represented by formula (A), (B), (C) or (D) which provides an azo dye compound differing in the diffusibility from the compound represented by the general formula (I) or (II) as a result of developing under an alkaline condition



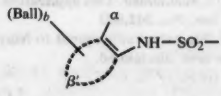
(A)

wherein β represents the nonmetal atoms necessary to form a benzene ring, which benzene ring may be condensed with a carbocylic ring or a heterocylic ring to form a condensed ring;

α represents a group of the formula $—OG^1$ or $—NHG^2$ wherein G^1 represents a hydrogen atom or a group capable of producing a hydroxy group when hydrolyzed and G^2 represents a hydrogen atom, an alkyl group having 1 to 22 carbon atoms or a hydrolyzable groups;

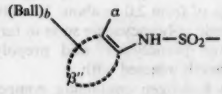
b represents 0, 1 or 2 wherein b is 1 or 2 except when α represents the group $—NHG^2$ and G^2 contains a group which renders the compound immobile and nondiffusible; and

Ball represents a ballast group;



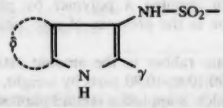
(B)

wherein Ball, α and b, respectively, have the same meanings as in formula (A), and β' represents atoms necessary to form a carbocyclic ring which may be condensed with a carbocyclic ring or heterocyclic ring to form a condensed ring system;



(C)

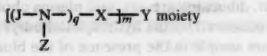
wherein Ball, b and α, respectively, have the same meanings as in formula (A), and β'' represents the atoms necessary to form a heterocyclic ring which may be condensed with a carbocyclic ring or a heterocyclic ring;



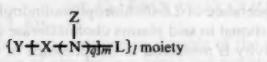
(D)

wherein γ represents a hydrogen atom, or an alkyl group, an aryl group or a heterocyclic ring residue or a —CO—G^6 group where

wherein G^7 represents a hydrogen atom, an alkyl group, a cycloalkyl group or an aryl group; G^8 has the same definition as G^7 or is an acyl group derived from an aliphatic or an aromatic carboxylic acid or from a sulfonic acid; and G^9 represents a hydrogen atom or a substituted or unsubstituted alkyl group, further wherein the —O—R^1—R^2 group is ortho the



in formula (I) and ortho the



in formula (II).

4,340,662

TELLURIUM IMAGING COMPOSITION

Stanford R. Ovshinsky, Bloomfield Hills, Mich.; Leon F. Hines, Hazleton, Pa.; Ronald W. Citkowski, Pleasant Ridge, and Terry T. Yu, Mt. Clemens, both of Mich., assignors to Energy Conversion Devices, Inc., Troy, Mich.

Continuation-in-part of Ser. No. 73,699, Sep. 10, 1979, abandoned. This application Jun. 26, 1981, Ser. No. 277,720

Int. Cl.[3] G03C *1/00, 5/24*

U.S. Cl. 430—270 65 Claims

1. In a composition responsive to activating energy for forming an imaging film, which composition comprises

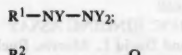
(a) an image-forming tellurium compound;

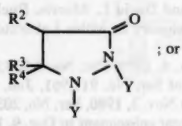
(b) a reductant precursor which will abstract labile hydrogen from a hydrogen donor under the influence of activating radiation to become a reducing agent with respect to the image-forming tellurium compound;

(c) a source of labile hydrogen for reaction with said reductant precursor; and

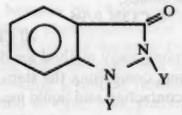
(d) a matrix in which said tellurium compound, reductant precursor and source of labile hydrogen are combined in amounts effective to form a composition which may be applied to a substrate,

the improvement wherein there is included in said composition a masked reducing agent of the formula





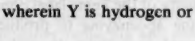
; or



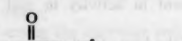
wherein R^1 is alkyl, alkanoyl, alkoxycarbonyl, phenyl, benzyl, benzoyl, nitrophenyl, benzylcarbonyl, diphenylmethyl, diphenylethyl, diphenylpropylcarbonyl or amino carbonyl; R^2, R^3 and R^4 each and independently are hydrogen, alkyl, phenyl, or amino; and R^5 is phenyl, nitrophenyl, halophenyl, alkyl, mono-, di- or tri-haloacetyl, benzoyl, alkylphenyl, or alkyl-p-isocyanophenyl,

said alkyl grouping in the radicals R^1 through R^5 having from 1 to 7 carbon atoms,

and wherein Y is hydrogen or



said compound containing at least one



in said compound,

the amount of said masked reducing agent being at least 1% by weight of said image-forming tellurium compound.

4,340,663

PHOTOGRAPHIC FILM

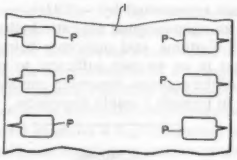
Akikazu Mikawa, Minami-ashigara, and Kyoichi Naruo, Fujinomiya, both of Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Filed May 1, 1981, Ser. No. 259,648

Claims priority, application Japan, May 14, 1980, 55-65750[U]

Int. Cl.[3] G03C *3/02, 1/76*

U.S. Cl. 430—496 6 Claims



1. Photographic film of the type having perforations formed along at least one edge of said film in the longitudinal direction of said film at predetermined intervals, the improvement comprising a cut being formed extending from each of said perforations on the side of said perforations away from a picture region toward the marginal edges of said film wherein tears at said perforations propagate away from said film picture regions.

4,340,564

COPOLYMER LATEX AND PHOTOGRAPHIC SILVER HALIDE MATERIALS CONTAINING SUCH LATEX

Marcel J. Monbaliu, Mortsel; Walter F. De Winter, 's-Gravenwezel, and Raphaël K. Van Poucke, Berchem, all of Belgium, assignors to Agfa-Gevaert, N.V., Mortsel, Belgium

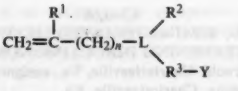
Filed Sep. 19, 1980, Ser. No. 188,734

Claims priority, application United Kingdom, Oct. 15, 1979, 7935782

Int. Cl.[3] G03C *5/24, 1/40*

U.S. Cl. 430—449 10 Claims

1. An aqueous dispersion of a copolymer comprising recurring units of a monomer which includes a photographically useful group, that plays a chemical role in the preparation, storage and/or processing of a photographic silver halide emulsion material, or defines thereof at least partly the spectral absorption characteristics, and recurring units of an ionogenic surface active monomer, characterized in that the said ionogenic monomer corresponds to the following general formula:

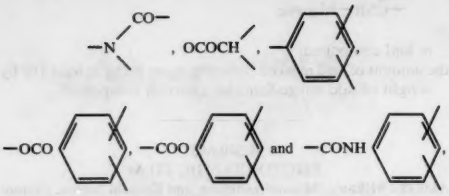


wherein

R^1 is hydrogen or methyl,

n is 0 or an integer from 1 to 20,

L is a trivalent linking moiety selected from the group consisting of —CONHCH<, —CON<,



R^2 is hydrogen or an aliphatic branched or unbranched saturated or unsaturated hydrocarbon group,

R^3 is a monovalent chemical bond or a bivalent aliphatic hydrocarbon group or such group interrupted by the group —COO— or —CONR— wherein R is hydrogen or a C_1–C_4 alkyl group, and

Y is a hydrophilic group selected from sulpho, sulphato and phosphono in acid or salt form, and wherein at least one of the groups represented by $-(CH_2)_n-$, R^2 and R^3 is or contains an uninterrupted aliphatic hydrocarbon chain of at least 8 C-atoms, said monomer being present in said copolymer in an amount sufficient to contribute to the stability of the aqueous dispersion containing said copolymer and to provide a stable dispersion.

4,340,665

SILVER HALIDE FILM

Lloyd G. Sidwell, Hendersonville, N.C., assignor to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Filed Mar. 4, 1981, Ser. No. 240,416

Int. Cl.³ G03C *1/34*

U.S. Cl. 430—539 **7 Claims**

1. A photographic element comprising a support and at least one silver halide emulsion layer on said support, characterized in that the photographic element contains a combination of a phosphate and trisodium hydroxyethylethylenediamine triacetate; said combination being employed in an amount effective to reduce metal particle contamination.

4,340,666

METHOD FOR MAKING PHOTOSENSITIVE SILVER HALIDE EMULSION LAYERS

Vivian K. Walworth, Concord, Mass., assignor to Polaroid Corporation, Cambridge, Mass.

Filed Feb. 17, 1981, Ser. No. 234,936

Int. Cl.³ G03C *1/02*

U.S. Cl. 430—569 **42 Claims**

1. A method for forming a photosensitive silver halide emulsion layer which comprises the steps of applying a mixture of a solution of a water-soluble complex of silver ion and a polymeric thickening agent to a permeable substrate, imbibing said complex into said permeable substrate and crystallizing photosensitive silver halide grains by decomplexation of said complex within said permeable substrate wherein said polymeric thickening agent comprises a polymer which inhibits silver halide grain growth relative to said permeable substrate and said permeable substrate comprises a polymer which promotes silver halide grain growth relative to said thickening agent.

4,340,667

RAPID, SEMI-AUTOMATED METHOD FOR DETERMINING DIBUCAINE NUMBERS

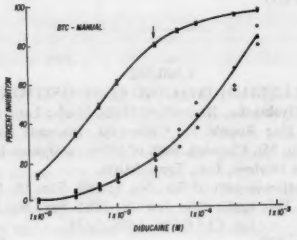
William P. Arnold, Charlottesville, Va., assignor to The University of Virginia, Charlottesville, Va.

Filed May 20, 1980, Ser. No. 151,602

Int. Cl.³ C12Q *1/46*

U.S. Cl. 435—20 **2 Claims**

1. In a method for the determination of dibucaine number by determining the plasma cholinesterase activity of serum samples with and without, dibucaine present, said plasma cholinesterase activity being measured by the hydrolysis of butyrylthiocholine by said serum sample in the presence of the blue dye 2,6-dichlorophenolindophenol, said butyrylthiocholine upon hydrolysis releasing thiocholine which directly reduces the blue dye to a colorless form, the change in absorbance at 600 nm due to the disappearance of 2,6-dichlorophenolindophenol being directly proportional to said plasma cholinesterase activity wherein said activity is measured in the presence of dibucaine to give a value for the inhibited activity and in the absence of dibucaine to give a value for the uninhibited activity and the dibucaine number (DN) is determined by the formula $DN=(1-(\text{inhibited activity}/\text{uninhibited activity}))\times 100$ the improvement comprising preparing serum samples with dibucaine present by using the serum to reconstitute lyophilized dibucaine coated on the walls of a serum sample vessel or present in a tablet in an amount which will yield a concentration of 1×10^{-4} M dibucaine in the serum sample.



4,340,668

HEME-LABELED SPECIFIC BINDING ASSAY

William E. Hornby, Berkshire, and David L. Morris, Buckinghamshire, both of England, assignors to Miles Laboratories, Inc., Elkhart, Ind.

Division of Ser. No. 45,423, Jun. 4, 1979, Pat. No. 4,238,565, which is a continuation-in-part of Ser. No. 917,961, Jun. 22, 1978, abandoned. This application Nov. 3, 1980, Ser. No. 203,526

The portion of the term of this patent subsequent to Dec. 9, 1997, has been disclaimed.

Int. Cl.³ G01N *33/54*; C12N *9/96*

U.S. Cl. 435—7 **20 Claims**

1. A homogeneous specific binding assay method for determining a ligand in a liquid medium, comprising the steps of:

forming a reaction mixture by contacting said liquid medium with

(a) reagent means including a labeled conjugate comprising, as label component, heme coupled to a binding component, such contact producing a binding reaction system in which a bound-species and a free-species of said labeled conjugate are formed, the proportion of the heme label component in said two formed species being a function of the presence of said ligand in said liquid medium, and

(b) an apoenzyme selected from apoperoxidase and apocytochrome C, the ability of the heme label component to combine with the apoenzyme to produce a holoenzyme being different in activity in said two formed species, and

determining the proportion of the heme label component in said two formed species by measuring holoenzyme activity in said reaction mixture.

4,340,669

SYSTEM FOR THE DETERMINATION OF GLUCOSE IN FLUIDS

Robert Bauer, Bristol, Ind., assignor to Miles Laboratories, Inc., Elkhart, Ind.

Filed Feb. 12, 1981, Ser. No. 233,928
Int. Cl.[3] G01N *33/50;* C12Q *1/54*
U.S. Cl. 435—14 6 Claims

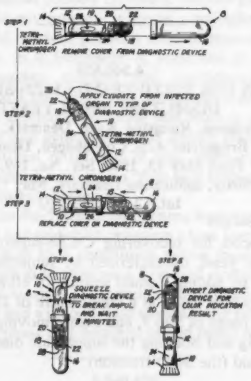
1. In a test composition capable of the determination of the presence of glucose in a liquid test sample, wherein said composition comprises glucose oxidase, a peroxidatively active substance and one or more chromogens reactive with hydrogen peroxide, and wherein the components of the composition are present together as a solution and are present in amounts and proportions such that the composition is capable of differentiating between concentrations of 2,000 and 5,000 milligrams of glucose per deciliter, the improvement which involves the use of m-anisidine as a chromogen.

4,340,670

METHOD OF USING OVER THE COUNTER SWAB KIT FOR SELF DETECTION OF GONORRHEA IN THE MALE USING TETRAMETHYL CHROMOGEN AMPUL

Frederick C. Mennen, 506 Clay St., LaPorte, Ind. 46350

Filed Jun. 19, 1981, Ser. No. 275,171
Int. Cl.[3] G01N *33/50;* C12K *1/00*
U.S. Cl. 435—25 1 Claim



1. A method for the detection and diagnosis of living gonorrhea bacteria by chromogenic reaction with a substantially colorless phenylenediamine dihydrochloride salt without transport of said bacteria from a sampling swab on which exudate from the penis of a male is placed comprising:

providing a tubular flexible cartridge having a closed end and an open end, placing a frangible ampul in said cartridge fitting a swab protruding from the open end of said cartridge above said ampul to provide a tip projecting from said cartridge, said ampul having a length at least as long as said swab and being supported by said closed end of said cartridge whereby the ampul and bottom portion of said swab substantially fill said cartridge and said ampul being filled with a substantially colorless 1% aqueous solution of N, N, N′ N′ tetramethyl-p-phenylenediamine dihydrochloride;

providing a cover which fits over the exposed tip of said swab to cap said cartridge;

taking a sample of exudate on the tip of the swab;

thereafter replacing said cover over said swab on said cartridge;

inverting the cartridge and cover;

breaking the ampul by squeezing the cartridge to release the aqueous solution whereby the swab is wetted by said solution and the color of the solution changes from substantially colorless to a purple color within a period of about three minutes;

waiting three minutes for the color indication of purple color and simultaneously inverting the diagnostic device in a final step;

the exudate at the tip developing this deep purple color after three minutes to show the presence of endogenous cytochrome oxidase constituting the metabolite of *Neisseria gonorrhea.*

4,340,671

E. COLI SENSITIVITY BROTH

Sandra F. Gibson, St. Louis, Mo., assignor to McDonnell Douglas Corporation, St. Louis, Mo.

Continuation-in-part of Ser. No. 828,944, Aug. 29, 1977, abandoned. This application May 27, 1980, Ser. No. 153,194
Int. Cl.[3] C12Q *1/18*
U.S. Cl. 435—32 15 Claims

1. In a microenvironment having accommodation for less than about 20 microns of dried medium and less than about 1 microliter of antibiotic and having a controlled limited oxygen (O_2) accessibility, the improvement of a selective broth medium for determining *Escherichia Coli* sensitivity from a polymicrobic specimen to an antibiotic consisting essentially of:

(a) from about 1.5 to about 4.5 g/l coumaric acid to inhibit the growth of gram negative organisms other than *E. Coli* which normally give positive results in tests for *E. Coli,*

(b) from about 5 to about 15 g/l lactose and L-arabinose carbon source,

(c) from about 2.5 to about 7.5 g/l nitrogen source,

(d) from about 1.5 to about 4.5 g/l gram-positive organism inhibitor,

(e) from about 0.25 to about 0.75 g/l mineral and vitamin source,

(f) from about 10 to about 30 ml reduced aniline blue indicator to visually show the metabolism of *E. Coli* organism,

(g) said carbon, nitrogen, mineral and vitamin sources containing a material metabolized by *E. Coli* to produce acid to trigger the indicator so that it turns blue, and

(h) a preselected antibiotic at a pH of about 7.5.

4,340,672

ENZYMATIC SYNTHESIS OF β-LACTAM ANTIBACTERIALS

Eiji Kondo, Ikeda; Takashi Mitsugi, Izumiotsu; Tamio Fujiwara, Amagasaki, and Ryonosuke Muneyuki, Kyoto, all of Japan, assignors to Shionogi & Co., Ltd., Osaka, Japan

Filed Sep. 19, 1980, Ser. No. 188,869
Claims priority, application Japan, Sep. 19, 1979, 54-119260
Int. Cl.[3] C12P *37/04*
U.S. Cl. 435—45 3 Claims

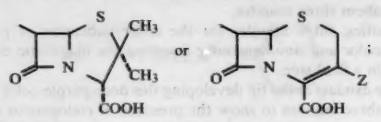
1. A process for the synthesis of a penicillin or cephalosporin comprising the steps of:

subjecting an amine of the formula:

$$H_2N—Q$$

optionally in an enzymatically acceptable conventional salt or ester form to enzymatic catalysis in the presence of an acylase and in the presence of an ester of the formula:

$$RCOO(CH_2CHO)_nY$$
$$\quad\quad\quad



Z is hydrogen, halogen, or a group which consisting of 1 to 7 carbon atoms selected from the group consisting of methyl, lower alkoxy, monocyclic (O, N or S)-heterocyclic thio, monocyclic lower aralkyl, lower alkanoyloxy, lower alkanoyloxy-lower alkyl, monocyclic (O, N or S)-heterocyclic thio-lower alkyl, or pyridinium-lower alkyl, optionally substituted with lower alkyl, carboxy-lower alkyl, lower alkoxy, carbamoyl or halogen; RCO, which contains 1 to 15 carbon atoms, is lower alkanoyl, lower alkenoyl, monocyclic lower aralkanoyl, monocyclic aryloxylower alkanoyl, (O, N or S)-heterocyclic-lower alkanoyl, (O,N or S)-heterocyclic thio-lower alkanoyl, cyanoacetyl, cyanomethylthioacetyl, monocyclic arylglycyl, monocyclic cycloalkenylglycyl, monocyclic arylglycolyl, N-acylarylglycyl, monocyclic arylmalonyl or arylsulfoalkanoyl, optionally substituted with lower alkyl, aminomethyl, halogen, hydroxy, lower alkanoyloxy or lower alkoxy; X is hydrogen, lower alkyl or hydroxymethyl; Y is hydrogen or lower alkyl; and n is an integer of from 1 to 20, to form a penicillin or cephalosporin of the formula:

RCONH—Q

wherein R and Q are as defined above.

4,340,673

PROCESS OF PRODUCING MODIFIED GLUCANS AS ANTI-CARIES AGENT

Thomas H. Stoudt, Westfield, and Karl H. Nollstadt, Clark, both of N.J., assignors to Merck & Co., Inc., Rahway, N.J.

Filed Nov. 7, 1980, Ser. No. 205,030

Int. Cl.[3] C12P *19/18, 19/04*

U.S. Cl. 435—97 **4 Claims**

1. A process for the preparation of a glucan with a molecular weight in excess of 500,000, consisting predominantly of α-(1→3)glucosidic bonds and inert to enzymatic attack by an endo-α-(1→3)glucan-3-glucanohydrolase which comprises cell-free biosynthesis of plaque polysaccharides in a biosynthetic medium containing glucosyl transferase derived from *Streptococcus mutans,* sucrose, and from 5–40 units/ml of the endo-α-(1→3)glucan-3-glucanohydrolase for 24–48 hours at 37° C., inactivating the enzymes, removing insoluble polysaccharides and adding the miscible organic solvent to precipitate the desired glucan.

4,340,674

COINTEGRATE PLASMIDS AND THEIR CONSTRUCTION FROM PLASMIDS OF ESCHERICHIA AND STREPTOMYCES

Jack J. Manis, Portage, and Sarah K. Highlander, Oshtemo Township, Kalamazoo County, both of Mich., assignors to The Upjohn Company, Kalamazoo, Mich.

Continuation-in-part of Ser. No. 146,320, May 5, 1980, abandoned, which is a continuation-in-part of Ser. No. 129,581, Mar. 12, 1980, abandoned. This application Jul. 23, 1980, Ser. No. 171,448

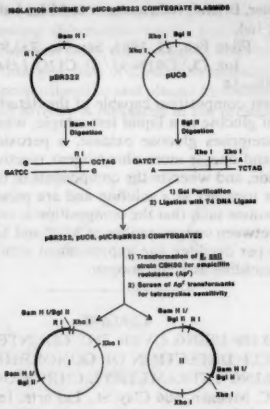
Int. Cl.[3] C12N *15/00;* **C12P** *21/00;* **C12N** *1/20, 1/00*

U.S. Cl. 435—172 **27 Claims**

6. A process for cloning plasmid pUC6 into a suitable bacterium which comprises:

(a) linearizing plasmids pBR322 and pUC6 to obtain linear plasmid DNA;

(b) ligating said linear plasmid DNA from pBR322 and pUC6 to obtain cointegrate plasmids pUC1012 and pUC1013; and,



(c) transforming said cointegerate plasmids into said suitable bacterium.

4,340,675

PROCESS FOR RECOVERING CU,ZN-SUPEROXIDE DISMUTASE FROM YEAST

Jack T. Johansen, Rungsted Kyst, Denmark, assignor to De Forenede Bryggerier A/S, Copenhagen, Denmark

Filed May 13, 1980, Ser. No. 149,392

Claims priority, application Denmark, May 17, 1979, 2033/79

Int. Cl.[3] C12N *9/02*

U.S. Cl. 435—189 **6 Claims**

1. A process for recovering Cu,Zn-superoxide dismutase (SOD) from yeast, characterized by subjecting the yeast to plasmolysis by adding a small amount of ether, and to subsequent autolysis in water at a temperature of 25° to 50° C. and a pH in the range of 5 to 9, and then removing the precipitate and purifying and isolating the superoxide dismutase from the residual liquid (the SOD fraction).

4,340,676

METHOD OF CRYSTALLIZING RIBULOSE, 1,5-BISPHOSPHATE CARBOXYLASE/OXYGENASE FROM PHOTOSYNTHETIC ORGANISMS, PARTICULARLY PLANT LEAVES

Don P. Bourque, Tucson, Ariz., assignor to University Patents, Inc., Norwalk, Conn.

Filed Sep. 24, 1980, Ser. No. 190,233

Int. Cl.[3] C12N *9/88*

U.S. Cl. 435—232 **60 Claims**

1. A method of crystallizing fraction I protein from a photosynthetic organism comprising:

separating and purifying protein from said photosynthetic organism;

mixing said protein in a suitable solvent to form a protein solution at a predetermined pH;

mixing a precipitant solution with said protein solution, said precipitant solution having a pH lower than the pH of the protein solution and within the range of 4.8 to 7.2 to form a mixed solution having a pH in the range of 6.6 to 7.0; and

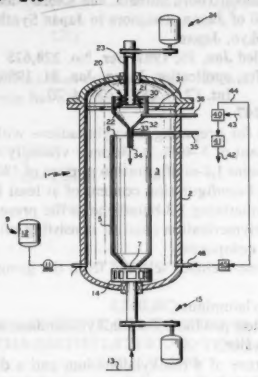
removing a portion of said solvent from said mixed solution to cause said protein to crystallize.

4,340,677

FERMENTATION PROCESS

Donald O. Hitzman, Bartlesville, Okla., assignor to Phillips Petroleum Company, Bartlesville, Okla.

Filed Apr. 11, 1980, Ser. No. 139,371
Int. Cl.³ C12N *1/34*
U.S. Cl. 435—246 10 Claims



1. In a biological process involving microorganism fermentation in a fluid environment wherein a multiphase mass comprising a liquid nutrient phase, a solid organism phase and a gaseous phase in a fermenter is subjected to fermentation thereby consuming nutrient and multiplying organisms, wherein at least a portion of said multiphase mass is present as a foam in said fermenter, wherein said foam is subjected to a foam breaking step generating a gas stream essentially free of said liquid nutrient phase and of said solid organism phase which gas stream is withdrawn from said fermenter,

the improvement comprising

subjecting the fluid stream comprising both said liquid nutrient phase and said solid organism phase leaving said foam breaking step to a centrifugal action inside of said fermenter such as to generate a first fluid stream being rich in said liquid nutrient phase and depleted in said solid organism phase and a second fluid stream being rich in said solid organism phase and depleted in said liquid nutrient phase.

4,340,678

XANTHOMONAS BIOPOLYMER FOR USE IN DISPLACEMENT OF OIL FROM PARTIALLY DEPLETED RESERVOIRS

William C. Wernau, Groton, Conn., assignor to Pfizer Inc., New York, N.Y.

This application Jan. 5, 1981, Ser. No. 222,388
Int. Cl.³ C12N *1/20;* C12P *19/06;* C12R *1/64*
Division of Ser. No. 851,757, Nov. 15, 1977, Pat. No. 4,296,203.
U.S. Cl. 435—253 4 Claims

1. Pyruvate-free xanthan-containing fermentation broth.

4,340,679

CULTURE MEDIA FOR INACTIVATION OF BACTERIAL GROWTH INHIBITORS

George M. Fukui; Herbert J. Spencer, and Laurens R. Williams, II, all of Irving, Tex., assignors to Abbott Laboratories, North Chicago, Ill.

Filed May 8, 1980, Ser. No. 147,794
Int. Cl.³ C12N *1/20*
U.S. Cl. 435—253 4 Claims

1. Bacterial growth medium containing an effective amount of salicylate to neutralize bacterial growth inhibitors in blood or blood components.

4,340,680

CATION EXCHANGE MEMBRANE OF FLUORINATED POLYMER FOR AN ELECTROLYSIS

Tatsuro Asawa, Yokohama; Masaaki Yamabe, Machida, and Haruhisa Miyake, Yokohama, all of Japan, assignors to Asahi Glass Company, Limited, Tokyo, Japan

Filed Jul. 23, 1980, Ser. No. 171,286
Claims priority, application Japan, Aug. 14, 1979, 54-102750
Int. Cl.³ B01J *47/12*
U.S. Cl. 521—27 7 Claims

1. A cation exchange membrane of a fluorinated polymer for an electrolysis which comprises a structure of a copolymer of a fluorinated olefin and a fluorovinyl compound having the formula:

$$CF_2=CX-(OCF)_l-(O)_m-(CFY')_n-COOM$$

wherein

X represents —F or $-CF_3$;

Y and Y' respectively represents —F or C_1–C_{10} perfluoroalkyl group;

l is 0 to 3;

m is 0 or 1;

n is 0 to 12 and M represents hydrogen atom or an alkali metal atom; and

one modified surface layer of said cation exchange membrane on an anode side which has $-SO_3M$ groups formed from —COOM groups of said copolymer, wherein said modified surface layer does not extend to more than $\frac{1}{3}$ the thickness of said membrane.

4,340,681

PROCESS FOR THE MANUFACTURE OF FOAMED OR NON-FOAMED COMPOSITIONS

Franz G. Reuter, Lemförde, and Karl-Heinz Hilterhaus, Georgsmarienhütte, both of Fed. Rep. of Germany, assignors to Reuter Technologie GmbH, Lemförde and Chemie-Anlagenbau Bischofsheim GmbH, Osnabrück, both of, Fed. Rep. of Germany

PCT No. PCT/DE79/00118, § 371 Date May 29, 1980, § 102(e) Date May 28, 1980, PCT Pub. No. WO80/00705, PCT Pub. Date Apr. 17, 1980
PCT Filed Sep. 28, 1979, Ser. No. 192,592
Claims priority, application Fed. Rep. of Germany, Sep. 29, 1978, 2842582
Int. Cl.³ C08G *18/14*
U.S. Cl. 521—123 5 Claims

1. Process for the manufacture of foamed or non-foamed compositions comprising reacting at least one organic or inorganic compound containing at least two isocyanate groups in the presence of an alkaline aqueous solution, an alkaline aqueous suspension or an alkaline aqueous slurry of an alkali metal hydroxide or alkaline earth metal hydroxide, and at least one catalyst characterized in that a mixture of the compound containing isocyanate groups and said hydroxide or oxide is added to a mixture of water and catalyst.

4,340,682

ADHESIVE CONSISTING ESSENTIALLY OF AN ISOCYANATE TERMINATED RICINOLEATE PREPOLYMER AND A CHLORINATED POLYVINYL CHLORIDE

Norris R. Legue, Scotch Plains, and Myron Shapiro, Rockaway, both of N.J., assignors to Synthetic Surfaces, Inc., Scotch Plains, N.J.

Filed May 7, 1981, Ser. No. 261,589
Int. Cl.[3] C09J *3/12, 3/14, 3/16*
U.S. Cl. 524—507 23 Claims

1. A curable adhesive composition consisting essentially of a solution in a suitable solvent of

(a) an isocyanate terminated ricinoleate prepolymer having an available isocyanate content exclusive of solvent and expressed as 100% solids at least as high as 2% by weight, and

(b) a chlorinated polyvinyl chloride resin appearing in quantities no more than approximately 90% by weight of the mixture of the combined chlorinated polyvinyl chloride and the said prepolymer.

4,340,683

POLYCARBONATE COMPOSITIONS

Ping Y. Liu, Naperville, Ill., assignor to General Electric Company, Mt. Vernon, Ind.

Continuation-in-part of Ser. No. 69,825, Aug. 27, 1979, Pat. No. 4,245,058. This application Mar. 3, 1980, Ser. No. 126,958
Int. Cl.[3] C08L *69/00*
U.S. Cl. 525—148 5 Claims

1. A ternary polycarbonate composition comprising in admixture, a high molecular weight aromatic polycarbonate which is based on a dihydric phenol, a minor amount of an acrylate copolymer, which is a copolymer of a C_1–C_5 acrylate and a C_1–C_5 methacrylate, and a minor amount of polyethylene oxide.

4,340,684

THERMOPLASTIC ELASTOMER BLENDS

Georg G. A. Bohm, Akron; Gary R. Hamed, Uniontown, and Lee E. Vescelius, Akron, all of Ohio, assignors to The Firestone Tire & Rubber Company, Akron, Ohio

Division of Ser. No. 1,623, Jan. 8, 1979, Pat. No. 4,250,273, which is a continuation-in-part of Ser. No. 879,308, Feb. 21, 1978, abandoned, which is a division of Ser. No. 806,036, Jun. 13, 1977, abandoned. This application Aug. 4, 1980, Ser. No. 175,096
Int. Cl.[3] C08F *8/00*
U.S. Cl. 525—194 6 Claims

1. A thermoplastic elastomer composition, comprising a blend of

from about 10 to about 50 parts by weight of a crystalline 1-olefin polymer, said 1-olefin polymer selected from the group consisting of a homopolymer and a copolymer made from 1-olefin monomers having from 2 to 20 carbon atoms, said homopolymer or said copolymer having a melting point of at least 90° C.;

from about 80 to about 15 parts by weight of a random styrene-butadiene rubber; and

from about 5 to about 55 parts by weight of a highly saturated elastomer,

said blend being partially cured and having a melt flow index of at least 1.0 so that a thermoplastic elastomer is formed;

wherein said highly saturated elastomer is selected from the group consisting of a hydrogenated homopolymer made from having dienes from 4 to 10 carbon atoms, and a hydrogenated diblock or triblock copolymer made from conjugated dienes having from 4 to 10 carbon atoms and vinyl substituted aromatics having from 8 to 12 carbon atoms, the amount of said saturation of said elastomer being at least 70%.

4,340,685

PROCESS FOR PREPARING POLYBUTADIENE HAVING A 1,2-CONFIGURATION CONTENT OF 5–40% AND A CIS-1,4-CONFIGURATION CONTENT OF 60% OR MORE

Yasumasa Takeuchi; Yutaka Obata, both of Yokkaichi; Noboru Ohshima, Suzuka; Tooru Shibata, and Kaoru Nakako, both of Yokkaichi, all of Japan, assignors to Japan Synthetic Rubber Co., Ltd., Tokyo, Japan

Filed Jan. 26, 1981, Ser. No. 228,625
Claims priority, application Japan, Jan. 31, 1980, 55/10757
Int. Cl.[3] C08F *2/06, 4/70*
U.S. Cl. 525—247 18 Claims

1. A process for preparing a polybutadiene with a 1,2-configuration content of 5–40%, a Mooney viscosity of 20 to 150 and a melting point 1,2-configuration portion of 180° C. to 220° C., and a cis-1,4-configuration content of at least 60%, which comprises polymerizing 1,3-butadiene in the presence of a 1,2 syndiotactic polymerization catalyst consisting of:

(A) a cobalt compound,

(B) at least one member selected from the group consisting of:

(i) a trialkylaluminum,

(ii) a reaction product of a trialkylaluminum and an alcohol or water,

(iii) a mixture of a trialkylaluminum and a dialkylaluminum halide,

(iv) a dialkylaluminum hydride, and

(v) an organolithium compound, and

(C) at least one compound selected from the group consisting of phenyl isothiocyanate and carbon disulfide in a hydrocarbon or halogenated hydrocarbon solution of a high cis-1,4-polybutadiene obtained by polymerizing 1,3-butadiene with a catalyst consisting of:

(D) at least one compound selected from the group consisting of organocarboxylates of nickel and organic complex compounds of nickel,

(E) at least one compound selected from the group consisting of boron trifluoride, boron trifluoride complex compounds and hydrogen fluoride, and

(F) at least one compound selected from the group consisting of the organometallic compounds of the alkali metals and the Group II or III metals of the Periodic Table, wherein the amount of the high cis-1,4-polymerization catalyst used is that corresponding to 0.02–2.5 mg atom nickel of the component (D) per 100 g of 1,3-butadiene.

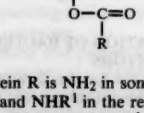
4,340,686

CARBAMATED POLY(VINYL ALCOHOL) USEFUL AS A BINDER IN ELASTOMERIC PHOTOPOLYMER COMPOSITIONS

Robert P. Foss, Hockessin, Del., assignor to E. I. Du Pont de Nemours and Company, Wilmington, Del.

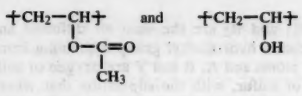
Division of Ser. No. 42,943, May 29, 1979, Pat. No. 4,247,624. This application Jan. 13, 1981, Ser. No. 224,685
Int. Cl.[3] C08F *8/32*
U.S. Cl. 525—59 2 Claims

1. A carbamated poly(vinyl alcohol) which comprises 15 to 100 mole percent of recurring units having the formula

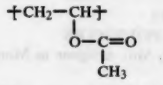


wherein R is NH_2 in some recurring units and at least one of OR^1 and NHR^1 in the remaining recurring units, wherein the units which contain OR^1 and NHR^1 are derived by reaction of said units wherein R is NH_2 with R^1OH, R^1OH being an alcohol which has a boiling point of greater than 100° C. at normal atmospheric pressure, with the proviso that said alcohol is compatible with said carbamated poly(vinyl alcohol),

and the ratio of $(OR^1+NHR^1)/NH_2$ is within the range of 0.05 to 1.0, and 0 to 85 mole percent of recurring units having a formula selected from the group consisting of



with the proviso that no more than 12 mole percent of the recurring units have the formula



4,340,687

HOT MELT ADHESIVE COMPOSITIONS CONTAINING AN ALPHA-METHYLSTYRENE/VINYL TOLUENE COPOLYMER

Vikramkumar Acharya, and Pallavoor R. Lakshmanan, both of Houston, Tex., assignors to Gulf Oil Corporation, Pittsburgh, Pa.

Continuation-in-part of Ser. No. 174,296, Jul. 31, 1980, abandoned. This application Jan. 28, 1981, Ser. No. 229,390

Int. Cl.³ C08F *8/30;* **C08K** *5/01;* **C08L** *91/06*

U.S. Cl. 525—193 **9 Claims**

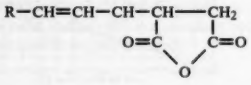
1. A hot melt adhesive compositions consisting essentially of:

(a) 10–30 weight % of an alkenyl succinic anhydride,

(b) 20–60 weight % of an ethylene copolymer, and

(c) 10–40 weight % of a tackifying resin;

said alkenyl succinic anhydride having the structure:



where R is an alkyl group containing at least about 15 carbon atoms; said ethylene copolymer having polymerized therein at least 40 weight % polymerized ethylene and the balance one or more polymerized monomers from the group consisting of vinyl acetate, acrylic and methacrylic acid and alkyl esters of acrylic and methacrylic acid; and said tackifying resin being an alpha-methylstyrene/vinyl toluene copolymer having a Ring and Ball softening point of about 75–120° C.

4,340,688

PROCESS FOR THE PREPARATION OF MALEINATE OILS

Michael Rössert, Unterschleissheim, and Rolf Dhein, Krefeld, both of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

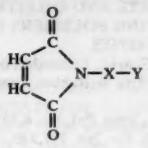
Filed Apr. 3, 1981, Ser. No. 250,589

Claims priority, application Fed. Rep. of Germany, Apr. 12, 1980, 3014106

Int. Cl.³ C08F *279/02*

U.S. Cl. 525—256 **9 Claims**

1. A process for the addition of maleic anhydride to diene polymers with a viscosity of from 400 to 50,000 cP (measured at 30° C.) in the presence of at least one gel-inhibitor, characterised in that a compound is used corresponding to the formula:



wherein

X represents a divalent aliphatic, cycloaliphatic, aliphatic-cycloaliphatic, aromatic or aliphatic-aromatic group with from 1 to 12 carbon atoms,

Y represents an amino group corresponding to the formula NR^1R^2 or an ammonium group corresponding to the formula:

$$N^{\oplus}R^1R^2R^3\,Z^{\ominus}$$

R^1,R^2 each represents an alkyl group with from 1 to 6 carbon atoms or

R^1 and R^2 together represent an alkylene group with from 2 to 6 carbon atoms which can additionally also contain a hetero-atom from the series N,S, O,

R^3 represents a hydrogen atom, an alkyl group or aralkyl group with from 1 to 18 carbon atoms or the group CH_2—CO—NH_2,

$Z^{\ominus}$ represents a monovalent anion, or

R^3 and $Z^{\ominus}$ together represent a group corresponding to the formulae

$$(CH_2)_n\text{-}SO_3^{\ominus} \text{ and } (CH_2)_m\text{-}CO_2^{\ominus} \text{ and}$$

n,m represent an integer from 2 to 6.

4,340,689

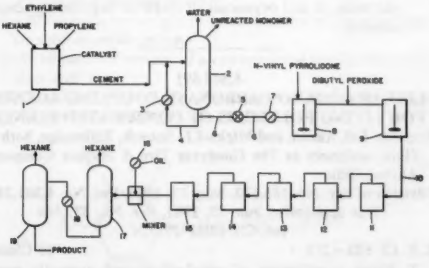
METHOD OF GRAFTING EPM AND EPDM POLYMERS

Ralph K. Joffrion, Baton Rouge, La., assignor to Copolymer Rubber & Chemical Corporation, Baton Rouge, La.

Filed Sep. 17, 1979, Ser. No. 76,386

Int. Cl.³ C08F *255/04, 255/06*

U.S. Cl. 525—263 **14 Claims**



1. A process for grafting onto EPM and EPDM backbone polymers formed by solution polymerization in the presence of a Ziegler type catalyst in which the solution polymerization reaction is terminated in a cement stage with the polymer that is formed remaining in solution in the polymerization solvent, the steps of introducing into the cement a grafting compound in the form of an organic compound containing polar groups, introducing into the cement a catalyst in the form of a free radical initiator capable of hydrogen abstraction for admixture with the cement while the cement is at reaction temperature far above the decomposition temperature for the catalyst.

4,340,690
CYCLIC ORGANO CARBONATE AND SULFITE COUPLING AGENTS FOR LIVING POLYMERS OF CONJUGATED DIENES

Joginder Lal, Akron, and Michael L. Senyek, Tallmadge, both of Ohio, assignors to The Goodyear Tire & Rubber Company, Akron, Ohio

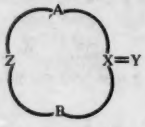
Division of Ser. No. 153,121, May 27, 1980, Pat. No. 4,301,258. This application Jun. 25, 1981, Ser. No. 277,320
Int. Cl.³ C08F *297/04*
U.S. Cl. 525—271 **10 Claims**

7. Block copolymers of vinyl-substituted aromatic compounds and conjugated dienes of broadened molecular weight distribution prepared by:

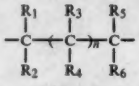
(a) polymerizing a vinyl-substituted aromatic compound in the presence of an initiator selected from organoalkali metal or organomagnesium initiators until the consumption of monomer is substantially complete,

(b) adding one or more conjugated diene monomers and polymerizing until substantially complete conversion of monomer(s) to polymer has taken place, and

(c) reacting the resulting block copolymer from said steps (a) and (b) by ring-opening coupling with a compound of the general formula:



wherein, Z is a 1,2-phenylene, 1,2-cyclohexylene, or



grouping wherein n=0 or 1 and R_1, R_2, R_3, R_4, R_5 and R_6 are the same or different and are selected from hydrogen or a hydrocarbyl group containing 1 to 12 carbon atoms and A, B and Y are oxygen or sulfur and X is carbon or sulfur with the stipulation that when X is sulfur, Y must be oxygen, in an amount of from 0.2 to 3 moles of compound per mole of said organoalkali metal or organomagnesium initiator.

4,340,691
LINEAR ORGANO CARBONATE COUPLING AGENTS FOR LIVING POLYMERS OF CONJUGATED DIENES

Joginder Lal, Akron, and Michael L. Senyek, Tallmadge, both of Ohio, assignors to The Goodyear Tire & Rubber Company, Akron, Ohio

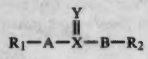
Division of Ser. No. 153,122, May 27, 1980, Pat. No. 4,301,259. This application Jun. 25, 1981, Ser. No. 277,564
Int. Cl.³ C08F *297/04*
U.S. Cl. 525—271 **10 Claims**

7. Block copolymers of vinyl-substituted aromatic compounds and conjugated dienes of broadened molecular weight distribution comprising:

(a) polymerizing a vinyl-substituted aromatic compound in the presence of an initiator selected from organoalkali metal or organomagnesium initiators until the consumption of monomer is substantially complete,

(b) adding one or more conjugated diene monomers and polymerizing until substantially complete conversion of monomer(s) to polymer has taken place, and

(c) reacting the resulting block copolymer from said steps (a) and (b) with a coupling agent of the general formula

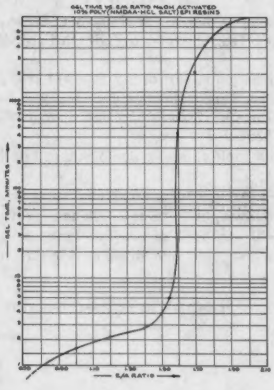


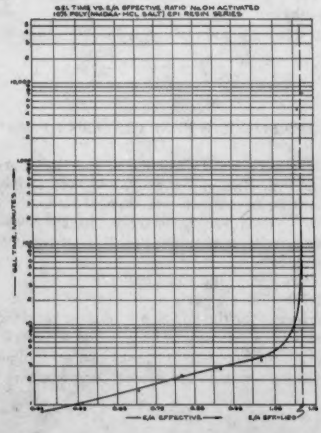
wherein, R_1 and R_2 are the same or different and are selected from a hydrocarbyl group containing from 1 to 12 carbon atoms and A, B and Y are oxygen or sulfur, X is carbon or sulfur, with the stipulation that when X is sulfur, Y must be oxygen, in an amount of from 0.2 to 3 moles of coupling agent per mole of said organoalkali or organomagnesium initiator.

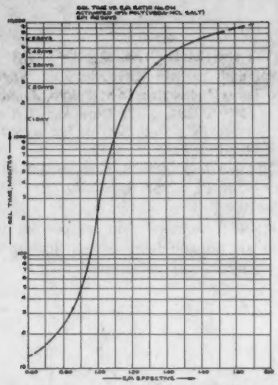
4,340,692
WET STRENGTH POLYMERS

Donald N. Van Eenam, Des Peres, Mo., assignor to Monsanto Company, St. Louis, Mo.

Division of Ser. No. 21,414, Mar. 19, 1979, Pat. No. 4,233,417. This application Apr. 7, 1980, Ser. No. 137,874
Int. Cl.³ C08F *8/08, 8/32, 8/44*
U.S. Cl. 525—329 **5 Claims**

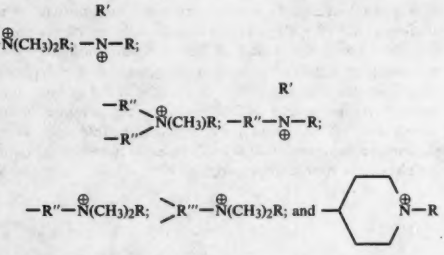




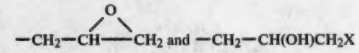


1. A water-soluble, cationic, thermosetting polymer comprising a backbone formed of repeating segments, from 10 to 100% of which backbone segments comprise an amine group, wherein

A. Substantially all the amine groups are pendant from the backbone segment and have a structure selected from the group consisting of



wherein R′ is a divalent radical that together with the nitrogen forms a heterocyclic radical; R″ is a divalent radical; R‴ is a trivalent radical; and R is selected from



where the second form is obtained by reaction of the first with an acid having the formula H^+X^- where X^- is an anion; the unattached bonds in each amine structure being attached directly to a carbon atom of the polymer backbone; and a 10% solids solution of the polymer in water at 25° C. and a pH of 11 does gel for at least 10 hours.

4,340,693

TITANOBORATE GLASS AS CROSS-LINKING AGENT IN POLYCARBOXYLIC ACID CEMENTS

Cyril F. Drake, and Francesca M. Shreeve, both of Harlow, England, assignors to International Standard Electric Corporation, New York, N.Y.

Continuation of Ser. No. 91,905, Nov. 6, 1979, abandoned. This application Oct. 17, 1980, Ser. No. 197,863

Claims priority, application United Kingdom, Nov. 24, 1978, 46019/78

Int. Cl.³ C03C *3/14*; C08K *3/40*

U.S. Cl. 525—337 **9 Claims**

1. A water setting cement composition comprising a polycarboxylic acid material, and a partially or completely water soluble glass composition, said glass composition acting as a cross-linking agent and comprising a titanoborate glass containing CaO as at least one further metal oxide said titanoborate glass having no alumina whereby shrinkage upon setting is generally less than 1% and is lower than that experienced with cements formed from aluminoborate glasses.

4,340,694

CROSSLINKING AND CHEMICAL MODIFICATION AGENTS FOR OLEFIN CONTAINING POLYMERS

Stanley J. Brois, Westfield, and Gary Ver Strate, Matawan, both of N.J., assignors to Exxon Research & Engineering Co., Florham Park, N.J.

Division of Ser. No. 874,656, Feb. 2, 1978, Pat. No. 4,230,337, which is a continuation of Ser. No. 634,266, Nov. 21, 1975, abandoned. This application Nov. 21, 1979, Ser. No. 96,526

Int. Cl.³ C08C *19/20*; C08F *8/34*

U.S. Cl. 525—342 **7 Claims**

1. A chemically modified derivative of an olefinically unsaturated polymer, said polymer selected from the group consisting of synthetic and natural hydrocarbon elastomers, vinyl and vinylidene polymers, olefinically unsaturated acrylic polymers, polyvinyl esters and copolymers thereof, unsaturated polyesters, and allyl polymers, said polymer being modified by addition thereto at the site of the olefinically unsaturated carbon atoms of an aliphatic organic oxycarbonyl sulfenyl chloride compound of the formula $R(OC(:O)SCl)_n$, n being an integer of at least 1 and up to about 8 and R being an alkyl or substituted alkyl having 1 to 12 carbon atoms, said substituents on said substituted alkyl comprising hydroxyl, chloro, nitro, oxy, oxycarbonyl or a C_1–C_4 alkyl or alkoxy-substituted silyl group.

4,340,695

VULCANIZATION SYSTEM, RUBBER MIXTURE CONTAINING SAID SYSTEM AND A PROCESS OF VULCANIZATION

Rüdiger Schubart, Bergisch-Gladbach; Ulrich Eholzer; Theo Kempermann, both of Cologne, and Ernst Roos, Odenthal-Osenau, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Filed Apr. 8, 1981, Ser. No. 252,051

Claims priority, application Fed. Rep. of Germany, Apr. 17, 1980, 3014717

Int. Cl.³ C08K *5/37, 5/44, 5/41*

U.S. Cl. 525—350 **6 Claims**

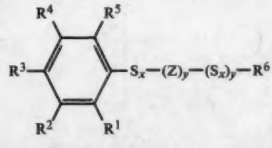
1. A vulcanization system consisting of

(a) 20–50 parts by weight of sulphur or 20–50 parts by weight of a sulphur donor,

(b) 20–50 parts by weight of an accelerator of the mercapto or sulphenamide group,

(c) 0–10 parts by weight of a conventional accelerator additive, and

(d) 20–50 parts by weight of a compound corresponding to the general formula (i):



(I)

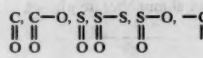
wherein

R_1 to R_5 are identical or different and denote hydrogen, halogen, nitro, cyano, CF_3, CCl_3, carboxyl, an alkoxy group containing 1–4 C-atoms in the alkyl part, or a C_1–C_4 alkyl group but the groups R_1–R_5 must not all be hydrogen,

x represents 1–4, preferably 2–3,

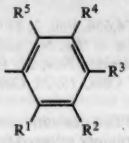
y represents 0 or 1, and

Z denotes divalent groups such as



C_1–C_{12} alkylene, C_4–C_{12} cycloalkylene, C_6–C_{10} arylene or C_8–C_{12} arylalkylene, and

R_6 denotes the group corresponding to the formula:



wherein R_1–R_5 have the meaning indicated above and may all be hydrogen;

C_1–C_{12} alkyl or a C_4–C_{12} cycloalkylene optionally substituted by OH and/or alkoxy with 1–4 C-atoms in the alkoxy group;

benzyl or trichloromethyl.

4,340,696

FORMAL-COUPLED POLYPHENYLENE OXIDES

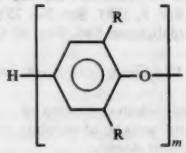
Dwain M. White, Schenectady, and George R. Loucks, Scotia, both of N.Y., assignors to General Electric Company, Schenectady, N.Y.

Filed Jan. 5, 1981, Ser. No. 222,409

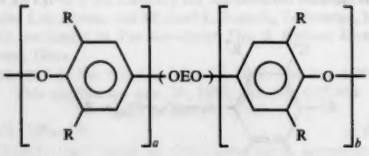
Int. Cl.³ C08G *65/48*; C08L *71/04*

U.S. Cl. 525—390 **4 Claims**

1. A formal-coupled polyphenylene oxide comprising a polyphenylene oxide radical of the formulas:



where independently each R is hydrogen, a hydrocarbon radical, a halohydrocarbon radical, a hydrocarbonoxy radical or a halohydrocarbonoxy radical, m is a number of at least 1, or



where independently each -(OEO)- is a divalent quinone residue, E is a divalent arene radical, either a or b is at least equal to 10, R is the same as above, and a methylene radical of the formula:

$$-CH_2-.$$

4. A process of forming a formal-coupled polyphenylene oxide comprising contacting a polyphenylene oxide and a stiochiometric excess of a methylene halide coupling agent in the presence of an aqueous solution of a water soluable base.

4,340,697

HEAT RESISTANT MOLDING RESIN COMPOSITION

Toshihiko Aya, and Yasushi Kubo, both of Nagoya, Japan, assignors to Toray Industries, Inc., Tokyo, Japan

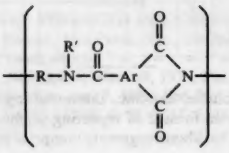
PCT No. PCT/JP79/00204, § 371 Date Apr. 1, 1980, § 102(e) Date Apr. 1, 1980, PCT Pub. No. WO80/00349, PCT Pub. Date Mar. 6, 1980

PCT Filed Aug. 2, 1979, Ser. No. 189,841

Int. Cl.³ C08L *81/04, 79/08*

U.S. Cl. 525—420 **4 Claims**

1. A heat resistant molding resin composition which comprises an aromatic polyamideimide resin having a repeating unit represented by the general formula:



wherein Ar denotes a trivalent aromatic group containing at least one 6-member carbon ring, R denotes a divalent aromatic or aliphatic residue and R′ denotes hydrogen, a methyl group or a phenyl group, as a main structural unit present in an amount of 60–99.9% by weight based on the entire weight of the resin composition and at least one thermoplastic resin consisting of a polyphenylene sulfide resin, said polyphenylenesulfide resin having a melt viscosity at 350° C. of not more than 1×10^5 poise and a decomposition temperature of not lower than 350° C., said polyphenylene sulfide resin being present in an amount of 40–0.1% by weight based on the entire weight of the resin composition.

4,340,698

POWDER COATING

Rudolph O. De Jongh, The Hague; Adrianus Visser, Maassluis, and Robert Van der Linde, Zwolle, all of Netherlands, assignors to Internationale Octrool Maatschappij "Octropa" B.V., Rotterdam, Netherlands

Continuation of Ser. No. 87,322, Oct. 23, 1979, abandoned. This application Mar. 12, 1981, Ser. No. 243,053

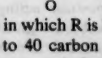
Int. Cl.³ C08L *63/00*

U.S. Cl. 525—438 **7 Claims**

1. Powder coating consisting essentially of a mixture of a polyester with terminal carboxyl groups, an epoxy compound having more than one 1,2-epoxy group per molecule and between 0.1 and 5 weight % of a curing catalyst, characterized in that the curing catalyst is a choline compound having the formula:

$$[Y-CH_2-CH_2-N-(CH_3)_3]_n{}^+X^{n-},$$

wherein Y is an —OR or



group in which R is hydrogen or a hydrocarbyl group containing 1 to 40 carbon atoms, and X^{n-} is an anion in which n represents a whole number from 1 to 3.

4,340,699

PROCESS FOR PREPARING A POLYMER OF THREE-DIMENSIONAL STRUCTURE OF THE CROSS-LINKED POLYURETHANE TYPE, PRODUCT OBTAINED ACCORDING TO THIS PROCESS AND APPLICATION THEREOF AS SWELLING AGENT, PARTICULARLY IN THERAPEUTICS

Herve Grouiller, Chenove, France, assignor to Laboratories d'Hygiene et de Dietetique (L.H.D.), Paris, France

Filed Jun. 29, 1981, Ser. No. 278,845

Claims priority, application France, Jun. 30, 1980, 80 14515

Int. Cl.[3] C08G 18/30

U.S. Cl. 525—460 20 Claims

1. A process for preparing a polymer having a three-dimensional structure of the cross-linked polyurethane type and having a good swelling powder, said process comprising the following steps of:

(1) reacting

(a) a polyolether, selected from the group consisting of the oxyalkylene polyols (I) and mixtures thereof, obtained by condensation of a polyol (II) containing at least 2 OH groups with an alkylene oxide (III) at a rate of 1 to 20 moles of (III) per free OH group of (II), with

(b) a polyisocyanate (IV),

the reaction being carried out with an excess of OH groups of (I) with respect to the NCO isocyanate groups of (IV) to obtain a polyurethane-polyol (V) having free OH groups; and

(2) reacting the resulting polyurethane-polyol (V) with epichlorhydrin (VI) and a polyamine (VII) selected from the group consisting of polyamines having at least two NH_2 amino groups and mixtures thereof.

4,340,700

PROCESS FOR PREPARING A PHENOLIC RESIN FROM AN ARALKYLENE ETHER AND AN AROMATIC ALDEHYDE

Alfred G. Edwards, Stourport-on-Severn, England, assignor to Albright & Wilson Limited, Oldbury, England

Filed Aug. 19, 1981, Ser. No. 294,396

Claims priority, application United Kingdom, Aug. 28, 1980, 8027882

Int. Cl.[3] C08G 8/04, 8/28, 8/36

U.S. Cl. 525—503 18 Claims

1. A process for preparing a resin containing phenolic groups, in which an aralkylene ether of formula $ROCH_2.Ar.CH_2OR$, wherein Ar represents a phenylene group and R is an alkyl group of 1–4 carbon atoms, is reacted with a phenol containing 1–3 hydroxyl groups and at least 2 hydrogen atoms in the aromatic phenolic nucleus, wherein (i) an ether composition which comprises at least 50 molar % of said ether and the remainder of said composition, if any, is selected from aromatic compounds each with an Ar nucleus having two substituents selected from CH_3, CH_2OR, CHO, $CH(OR)_2$, and said phenol and (ii) an added compound of formula R'CHO or R'CH $(OR^2)_2$, wherein R' is monovalent phenyl group or substituted phenyl group, in which each substituent is an alkyl group of 1–4 carbon atoms or a chlorine atom, and R^2 is as defined for R, are reacted together in a reaction mixture in the presence of a catalyst to form a resin containing phenolic groups, the molar proportion of phenol to the total of aromatic compounds in said ether composition and added compounds being 1.3:1 to 2.5:1 and the molar ratio of CH_2OR to the total of CHO and acetal groups being 3:1 to 10:1, and the molar ratio of phenol to the total of CHO and acetal groups being 3.7:1 to 9:1.

4,340,701

REMOVAL OF OLEFIN MONOMER FROM OLEFIN POLYMER

Bruce A. E. Willmore, Luton, and Jeffrey C. Greaves, Welwyn Garden City, both of England, assignors to Imperial Chemical Industries Limited, London, England

Continuation of Ser. No. 40,313, May 18, 1979, abandoned, which is a continuation-in-part of Ser. No. 936,194, Aug. 24, 1978, abandoned. This application Jun. 27, 1980, Ser. No. 163,471

Claims priority, application United Kingdom, Jun. 13, 1978, 26767/78

Int. Cl.[3] C08F 6/00, 6/28

U.S. Cl. 526—68 14 Claims

1. A process for separating a polymer from monomer absorbed therein, wherein a solid particulate olefin polymer having at least one unpolymerized olefin monomer absorbed therein is vigorously agitated by mechanical means in an inert atmosphere which is substantially free from oxygen and/or oxygen-containing impurities, the vigorous agitation is continued until the temperature of the polymer rises to at least 90° C. and some of the at least one olefin monomer is released from the polymer, and the released monomer is separated from the polymer before any substantial cooling of the polymer has occurred:

wherein the olefin polymer remains in the solid particulate form throughout the process.

13. A process for separating a polymer from monomer absorbed therein, wherein

a solid particulate olefin polymer having at least one unpolymerized olefin monomer absorbed therein is vigorously agitated by mechanical means in an inert atmosphere which is substantially free from oxygen and/or oxygen-containing impurities,

the vigorous agitation is continued until the temperature of the polymer rises to at least 90° C. as a consequence of the vigorous mechanical agitation, no additional heat is supplied to the polymer other than that resulting from the vigorous agitation and some of the at least one olefin monomer is released from the polymer, and

the released monomer is separated from the polymer before any substantial cooling of the polymer has occurred.

4,340,702

ULTRAFILTRATION OF VINYL RESIN LATICES AND REUSE OF PERMEATE IN EMULSION POLYMERIZATION

George R. Huddleston, Jr., Lorain, and James W. Turner, Bay Village, both of Ohio, assignors to The B. F. Goodrich Company, Akron, Ohio

Filed Oct. 22, 1979, Ser. No. 86,853

Int. Cl.[3] C08F 2/26, 6/20

U.S. Cl. 526—70 16 Claims

1. A process of producing homopolymers of vinyl and vinylidene halides and copolymers thereof with each other or either with one or more other vinylidene monomers having at least one terminal $CH_2{=}C{<}$ grouping comprising, forming a monomer premix in a reaction zone, said premix containing the aqueous reaction medium, the monomer or monomers to be polymerized, from about 0.02% to about 1.0% by weight of a free radical yielding catalyst based on the weight of 100 parts of monomer(s) being polymerized, up to about 6.0% by weight of an emulsifier based on the weight of 100 parts of monomer(s), polymerizing said premix in said reaction zone with agitation at a temperature in the range of about 30° C. to about 70° C. to produce a vinyl resin latex, passing said latex through a stripping zone to remove unreacted monomer(s) therefrom with steam, passing the stripped latex to an ultrafiltration zone wherein the latex is forced through a semipermeable membrane leaving behind the vinyl polymer particles in a range of about 30% to about 60% total solids, circulating the emulsifier containing permeate from said ultrafiltration zone to the reaction zone for use as the aqueous reaction medium, passing said

vinyl polymer particles in concentrated latex form to a drying zone and recovering the polymer or copolymer in dry unagglomerated powder form, whereby polymer buildup in said reaction zone is substantially reduced when using said emulsifier containing permeate as the reaction medium.

4,340,703

PROCESS FOR PREPARING BIMODAL OR MULTIMODAL POLYMERS OF CONJUGATED DIENES

Christian Freppel, Chamalieres, France, assignor to Compagnie Generale des Etablissements Michelin, Clermont-Ferrand, France

Filed Apr. 6, 1981, Ser. No. 251,978
Claims priority, application France, Apr. 9, 1980, 80 08110
Int. Cl.³ C08F 2/40
U.S. Cl. 526—79 **7 Claims**

1. A process of preparing a bimodal or multimodal homopolymer of a conjugated diene or a bimodal or multimodal copolymer of a conjugated diene with another conjugated diene or with a vinyl aromatic compound, consisting in polymerizing the monomer(s) in a reaction medium at a temperature of between 20° C. and 200° C. in the presence of a catalyst system formed of the reaction product of:

(a) an organic compound of a metal of group 3A of the periodic classification of elements of the Mendeleev Table having one of the following formulas:

$M^1M^3R^1R^2R^3R^4$

$M^2(M^3R^1R^2R^3R^4)_2$

$M^3R^1R^2R^3$

$M^1OM^3R^1R^2$

in which M^1 represents an alkali metal, M^2 represents an alkaline earth metal, M^3 represents a metal of group 3A, R^1, R^2, R^3 represent an alkyl or aralkyl radical and R^4 represents either an alkyl or aralkyl radical or a radical XB in which X represents an oxygen, sulfur or nitrogen atom and B represents an alkyl or aralkyl radical or a radical $M^3(R^5R^6)$ in which R^5, R^6 represent an alkyl or aralkyl radical,

with (b) at least one electron-donor compound containing at least one heteroatom selected from the group consisting of aprotic polar compounds, protic polar compounds and compounds formed of the reaction products of protic polar compounds with an alkali metal or with an alkaline earth metal,

characterized by

adding hydrogen as a modifying agent to the reaction medium during the course of the polymerization reaction.

4,340,704

THERMOPLASTIC RUBBERS AND PROCESS FOR PREPARING SAME

Italo Borghi; Sergio Foschi, and Paolo Galli, all of Ferrara, Italy, assignors to Montedison S.p.A., Milan, Italy

Continuation of Ser. No. 16,558, Mar. 1, 1979, Pat. No. 4,298,721, and Ser. No. 807,520, Jun. 17, 1977, abandoned, and Ser. No. 893,400, Apr. 4, 1978, abandoned, each is a continuation of Ser. No. 550,136, Feb. 14, 1975, abandoned. This application Apr. 30, 1980, Ser. No. 145,360
Claims priority, application Italy, Feb. 15, 1974, 41005 A/74
Int. Cl.³ C08F 4/76
U.S. Cl. 526—125 **7 Claims**

1. Process for preparing thermoplastic rubbers which are copolymers of propylene with ethylene containing from 25% to 50% by weight of polymerized ethylene and the balance polymerized propylene, said copolymers showing on X-rays examination in the unoriented state a polypropylene-type and/or a polyethylene-type crystallinity, the polypropylene crystallinity content ranging from 3 to 50% and the polyethylene-type crystallinity being less than 20%, said copolymers being further characterized in that in the infrared spectrum thereof the value of the R ratio between the absorption intensity of the band at 11.88 microns and that of the absorption at 12.16 microns is from 2 to 6, the R ratio being less than 4 when the polymerized propylene content of the polymers is lower than 70% by weight, comprised between 3 and 6 when the polymerized propylene content ranges from 70 to 80% by weight, characterized in that mixtures of propylene and ethylene are polymerized in the presence of a catalyst consisting of the product obtained by reacting

(A) a catalyst-forming component which is an addition and/or substitution reaction product of an electron-donor compound (or Lewis base) with an Al-trialkyl compound, or the addition reaction product of an electron-donor compound with an Al-alkyl compound containing two or more aluminum atoms bound to each other through an oxygen or nitrogen atom,

with

(B) a catalyst-forming component obtained by contacting an addition compound of a halogenated compound of di-, tri-, or tetravalent titanium and an electron-donor compound with a carrier comprising an anhydrous active magnesium dihalide, said component (A) being characterized in that it is prepared by reacting 1.0 mole of Al-alkyl compound with 0.1 to 1.0 mole of a Lewis base which is an ester of an oxygenated organic or inorganic acid, a polyamine compound, or, when catalyst-forming component (B) is prepared starting from a complex of a halogenated titanium compound with a polyamine, any Lewis base other than said esters of oxygenated organic or inorganic acids and polyamine compounds, and catalyst-forming component (B) being characterized in that, in its X-rays powder spectrum, a halo appears in place of the most intense diffraction line characteristic of the X-rays powder spectrum of the normal, non-active magnesium dihalide, in that the amount of Ti compound contained therein, expressed as Ti metal, is less than 0.3 g-atoms per mole of the total amount of the electron-donor used in preparing the catalyst, and in that the molar ratio between said Ti compound and the Al-alkyl compound is from 0.001 to 0.1.

4,340,705

PREPARATION OF INTERPOLYMERS OF ALPHA-OLEFINS AND NONCONJUGATED ALPHA, OMEGA-POLYENES

Joginder Lal, Akron, and Michael L. Senyek, Tallmadge, both of Ohio, assignors to The Goodyear Tire & Rubber Company, Akron, Ohio

Continuation-in-part of Ser. No. 694,851, Jun. 10, 1976, abandoned. This application Dec. 19, 1977, Ser. No. 861,600
Int. Cl.³ C08F 4/64, 36/20
U.S. Cl. 526—139 **7 Claims**

1. A process of making low-gel, improved unsaturation interpolymers from about 95 to about 5 mole percent of at least one alpha-olefin containing from 4 to 12 carbon atoms and about 5 to about 50 mole percent of at least one second monomer selected from the class of alpha, omega-polyenes containing at least two ethylenic double bonds and having at least 8 carbon atoms in the presence of coordination catalysts prepared from components (A) an organoaluminum compound, (B) a transition metal compound selected from Groups IVB, VB, and VIB of the Periodic Table, and (C) at least one compound of the general formula $Q{=}P(XY)_3$ where P is phosphorous, Q is oxygen or sulfur, X is oxygen or sulfur and Y is a hydrocarbon radical containing from 1 to 20 carbon atoms or a hexahydrocarbon phosphoric triamide having 1 to 20 carbon atoms in the hydrocarbon radical.

4,340,706

ALKALI METAL ACRYLATE OR AMMONIUM ACRYLATE POLYMER EXCELLENT IN SALT SOLUTION-ABSORBENCY AND PROCESS FOR PRODUCING SAME

Shigeji Obayashi, Akashi; Morio Nakamura; Koichi Fujiki, both of Kakogawa, and Takushi Yamamoto, Kobe, all of Japan, assignors to Seitetsu Kagaku Co., Ltd., Hyogo, Japan

Filed Nov. 21, 1980, Ser. No. 209,174
Claims priority, application Japan, Mar. 19, 1980, 55/34967
Int. Cl.³ C08F *220/06*
U.S. Cl. 526—207 25 Claims

1. A process for producing an alkali acrylate polymer having excellent salt solution-absorbency, characterized by suspending an aqueous solution of acrylic acid and an alkali metal acrylate or ammonium acrylate, wherein the monomer concentration is at least 40% by weight, the mole ratio of the acrylic acid to said acrylate is 50/50 to 2/98, in an alicyclic or aliphatic hydrocarbon solvent containing a surfactant having an HLB value of 8–12 and subjecting it to inverse suspension polymerization in the presence of a water-soluble radical polymerization initiator.

4,340,707

LIQUID, UV-HARDENABLE COATING AGENT AND BINDER

Peter Qüis, Darmstadt-Neu-Kranichstein, and Theodor Schroth, Trebur, both of Fed. Rep. of Germany, assignors to Röhm GmbH, Darmstadt, Fed. Rep. of Germany

Filed Oct. 17, 1980, Ser. No. 198,045
Claims priority, application Fed. Rep. of Germany, Nov. 10, 1979, 2945549
Int. Cl.³ C08F *20/38, 2/50*
U.S. Cl. 526—289 5 Claims

1. A liquid coating agent and binder, hardenable under the influence of ultraviolet radiation, comprising at least one oligomer of the formula

$$[(CH_2{=}CHCOO)_mROOCC_2H_4]_2S$$

wherein

R is an (m+1)-valent aliphatic group having 2 to 12 carbon atoms and is an aliphatic hydrocarbon group or two or more of such groups joined pairwise by an oxygen atom to form an ether or polyether and

m is an integer from 1 to 3,

said oligomer or oligomers having an average molecular weight between 370 and 1000 and an average double bond equivalent weight of at most 500.

4,340,708

ANAEROBICALLY HARDENING ADHESIVES AND SEALING COMPOUNDS

Werner Gruber, Düsseldorf, Fed. Rep. of Germany, assignor to Henkel Komanditgesellschaft auf Aktien, Düsseldorf-Holthausen, Fed. Rep. of Germany

Filed Dec. 22, 1980, Ser. No. 219,244
Claims priority, application Fed. Rep. of Germany, Dec. 24, 1979, 2952286
Int. Cl.³ C08F *20/20*
U.S. Cl. 526—313 11 Claims

1. An anaerobically hardening adhesive and sealing composition comprising methacrylic or acrylic acid esters, organic peroxides, nitrogen containing compounds as accelerators for polymerization, and customary adjuvant substances, wherein from about 0.01 to 10 percent by weight, based upon the weight of the methacrylic or acrylic acid esters, of a compound selected from the group consisting of cyanoacetic acid, an ester of cyanoacetic acid where the alcohol component of the ester consists of an aliphatic or aromatic radical optionally containing electronegative substituents and having from about 1 to 20 carbon atoms, and an amide of cyanoacetic acid where the amide group consists of at least one aliphatic radical which can be interrupted by one or more hetero-atoms and/or forms a ring with the amide nitrogen, and has from about 1 to 18 carbon atoms, is also present.

4,340,709

ADDITION CURING SILICONE COMPOSITIONS

Edward M. Jeram, Burnt Hills, and Alfred H. Smith, Jr., Ballston Lake, both of N.Y., assignors to General Electric Company, Waterford, N.Y.

Filed Jul. 16, 1980, Ser. No. 169,259
Int. Cl.³ C08G *77/06*
U.S. Cl. 528—15 24 Claims

1. An addition curing silicone composition with a low viscosity in the uncured state and a high physical strength in the cured state comprising (A) 100 parts by weight of a vinyl-containing diorganopolysiloxane having a viscosity varying from 100 to 200,000 centipoise at 25° C., where the diorganovinylsiloxy content varies from 0.14 to 2.0 mole percent and the organo group is a monovalent hydrocarbon radical; (B) from 0.1 to 500 parts per million of a platinum catalyst; (C) from 0.1 to 25 parts by weight of a crosslinker selected from the class consisting of hydride resins having only terminal hydrogen atoms and linear hydride polysiloxanes wherein said linear hydride polysiloxane has hydrogen atoms only in the internal position of the siloxane chain, and (D) from 75 to 150 parts by weight of a linear hydride polysiloxane coupler having hydrogen atoms bonded only at the terminal silicone atoms in the siloxane chain wherein said coupler has a dimethyl hydrogen siloxy content of from 3.0 to 9.0 mole percent and the viscosity of the linear hydride coupler varies from 1 to 500 centipoise at 25° C.

4,340,710

ADDITION CURE COATING WITH IMPROVED ADHESION

Edgar D. Brown, Jr., Schenectady, N.Y., assignor to General Electric Company, Waterford, N.Y.

Filed Apr. 2, 1981, Ser. No. 250,324
Int. Cl.³ C08G *77/06*
U.S. Cl. 528—15 9 Claims

1. A latent curable electronic junction coating composition stabilized against premature gelation comprising:

a. an olefinorganopolysiloxane having units of the structural formula:

$$R_aR'_bSiO_{(4-a-b)/2}$$

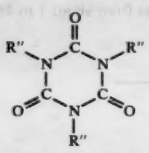
b. an organohydrogenpolysiloxane having units of the structural formula:

$$R_aSiH_bSiO_{(4-a-b)/2}$$

wherein R is selected from the group consisting of a monovalent hydrocarbon radical, a halogenated monovalent hydrocarbon radical, a cyanoalkyl radical and mixtures thereof, R′ is an olefinic hydrocarbon radical, wherein a has a value of from 0 to 3, inclusive, b has a value of from 0.0005 to 2.0, inclusive, and the sum of a and b is equal to from 0.8 to 3, inclusive,

c. a sufficient amount of a pltinum catalyst to cause the co-reaction of (a) and (b); and

d. a combination of inhibiting agents comprised of (i) an ethylenically unsaturated isocyanurate corresponding to the structural formula:



wherein R'' is the same or different and is selected from the group consisting of hydrogen, alkyl, aryl, aralkyl polynuclear aryl, heteroaryl, monofunctional lower-alkenyl and the non-interfering substituted derivatives thereof with the proviso that at least one R'' is lower-alkyl and (ii) a dialkylacetylenedicarboxylate having the structural formula:

ROOCC≡CCOOR

wherein R is as described above and wherein said combination of ethylenically unsaturated isocyanurate and said dialkylacetylenedicarboxylate is present in an amount sufficient to inhibit premature gelation but insufficient to prevent cure at elevated temperature.

4,340,711

PROCESS FOR THE PREPARATION OF GRANULAR SILARYLENESILOXANE COPOLYMERS POLYMERIZED UNDER CONDITIONS OF SHEAR

Edwin R. Evans, Elnora, N.Y., assignor to General Electric Company, Waterford, N.Y.

Filed Jan. 16, 1981, Ser. No. 225,576

Int. Cl.³ C08G *77/06*

U.S. Cl. 528—21 **5 Claims**

1. A process for making granular high molecular weight silarylenesiloxane copolymers which comprises: heating silphenyldiol and disiloxanol to a temperature sufficiently high to melt the monomers but below the carbonization or decomposition temperature thereof in an atmosphere inert to the reactants and products; mixing the composition in a manner which generates an amount of mechanical shear sufficient to assure formation of discrete granules of silarylenesiloxane copolymer; adding an amount of a polymerization catalyst effective for copolymerizing said silphenyldiol and disiloxanol; continuing the heating and mixing for an amount of time sufficient to provide a thermoplastic composition having a bulk density between about 0.25 and 0.40 grams per milliliter; and cooling the composition to below its crystallization melt temperature while continuing the mixing, whereby a dry granular thermoplastic composition is formed.

4,340,712

PROCESS FOR THE PREPARATION OF POLYISOCYANATES CONTAINING BIURET AND/OR HIGHER POLYURET GROUPS AND USE THEREOF AS SYNTHESIS COMPONENT IN THE PREPARATION OF POLYURETHANE PLASTICS

Wolfgang Reichmann, Duesseldorf; Klaus König, and Manfred Schönfelder, both of Leverkusen, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Filed Dec. 19, 1979, Ser. No. 105,368

Claims priority, application Fed. Rep. of Germany, Dec. 30, 1978, 2856826

Int. Cl.³ C08G *18/78*; C07C *127/22*

U.S. Cl. 528—45 **3 Claims**

1. A process for the preparation of polyisocyanates containing biuret and/or higher polyuret groups comprising reacting secondary diamines corresponding to the formula:

$R_1—NH—R_2—NH—R_3$

with excess quantities of organic diisocyanates corresponding to the formula:

$R_4(NCO)_2$

wherein

R_1 and R_3, which may be the same or different, each represents an aliphatic hydrocarbon radical containing from 1 to 20 carbon atoms which may also be attached to one another with incorporation of the basic diamine skeleton to form a 5- or 6-membered ring, or a cycloaliphatic hydrocarbon radical containing from 4 to 15 carbon atoms; and

R_2 and R_4, which may be the same or different, each represents an aliphatic hydrocarbon radical having a total of from 2 to 20 carbon atoms optionally containing ester groups or a cycloaliphatic hydrocarbon radical containing from 4 to 15 carbon atoms, at least 2 carbon atoms being arranged between the two nitrogen atoms;

characterized in that

(a) the reaction is carried out in the presence of catalytic quantities of strong acids which form mixed carbamic acid anhydrides with isocyanates, and

(b) the reaction product is clear and contains virtually no difficultly soluble polyurea.

2. A process for the preparation of clear polyisocyanates containing biuret and/or higher polyuret groups, but containing virtually no difficultly soluble polyureas comprising reacting secondary diamines corresponding to the formula:

$R_1—NH—R_2—NH—R_3$

with excess quantities of organic diisocyanates corresponding to the formula:

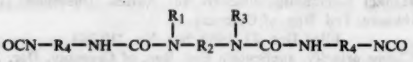
$R_4(NCO)_2$

wherein

R_1 and R_3, which may be the same or different, each represents an aliphatic hydrocarbon radical containing from 1 to 20 carbon atoms which may also be attached to one another with incorporation of the basic diamine skeleton to form a 5- or 6-membered ring, or a cycloaliphatic hydrocarbon radical containing from 4 to 15 carbon atoms; and

R_2 and R_4, which may be the same or different, each represents an aliphatic hydrocarbon radical having a total of from 2 to 20 carbon atoms optionally containing ester groups or a cycloaliphatic hydrocarbon radical containing from 4 to 15 carbon atoms, at least 2 carbon atoms being arranged between the two nitrogen atoms;

characterized in that the reaction is carried out in the absence of catalysts to form urea diisocyanate corresponding to the formula:



and subsequently reacting said urea diisocyanates thus formed in the presence of catalytic quantities of strong acids which form mixed carbamic acid anhydrides with isocyanates, with more diisocyanate corresponding to the formula:

$R_4(NCO)_2$

or with another diisocyanate corresponding to the formula:

$R_5(NCO)_2$

wherein

R_5 corresponds to the definition of R_4 but is not the same as R_4.

4,340,713

METHOD FOR PREPARING HIGH MOLECULAR WEIGHT EPOXY RESINS CONTAINING HYDROLYZED EPOXY GROUPS

Rhetta Q. Davis, and Michael B. Cavitt, both of Lake Jackson, Tex., assignors to The Dow Chemical Company, Midland, Mich.

Filed Nov. 26, 1980, Ser. No. 210,475
Int. Cl.[3] C08G 59/14, 59/62
U.S. Cl. 528—89 12 Claims

1. A process for preparing a high molecular weight epoxy resin composition containing one or more hydrolyzed glycidyl group which process comprises reacting in the absence of an inert organic solvent

(A) at least one low molecular weight epoxy resin having an average of more than one glycidyl group per molecule;

(B) at least one compound having an average of more than one hydroxyl group per molecule; and

(C) water in an amount essentially stoichiometric with the number of glycidyl groups to be hydrolyzed; said reaction being conducted in the presence of

(D) a catalytic quantity of a catalyst for reacting component (C) with a glycidyl group;

(E) a catalytic quantity of a catalyst for effecting the reaction between components (A) and (B)

thereby providing a high molecular weight epoxy resin composition containing one or more hydrolyzed glycidyl groups.

4,340,714

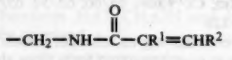
PREPARATION OF CURABLE POLYADDUCTS, CONTAINING BASIC NITROGEN GROUPS, AND USE OF THE PRODUCTS

Eberhard Schupp, Schwetzingen; Fritz E. Kempter, Mannheim, and Erich Gulbins, Heidelberg-Neuenheim, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Fed. Rep. of Germany

Filed May 22, 1981, Ser. No. 266,363
Claims priority, application Fed. Rep. of Germany, Jun. 6, 1980, 3021300
Int. Cl.[3] C08G 59/14, 59/28
U.S. Cl. 528—99 11 Claims

1. A process for the preparation of a curable polyadduct, containing basic nitrogen groups, which after protonation with an acid can be used as a binder for the production of coatings, in particular for the cathodic electrocoating of metal articles, wherein

(A) monophenols or polyphenols, or mixtures of monophenols and polyphenols, which contain groups of the general formula (I)



where R^1 and R^2 are identical or different and each is hydrogen or methyl are reacted with

(B) amines having one or more primary or secondary amino groups or one or more primary and one or more secondary amino groups, and the adduct formed is reacted with

(C) epoxide compounds having from 1 to 4 epoxide groups per molecule and having a molecular weight of at most 2,500, the components (A) and (C) being employed in such amounts that the ratio of phenolic hydroxyl groups of (A) to epoxide groups of (C) is from 1:0.5 to 1:2 and the amine (B) being employed in such amount that the resulting polyadduct of (A), (B) and (C) contains from 0.1 to 5% by weight of basic nitrogen.

4,340,715

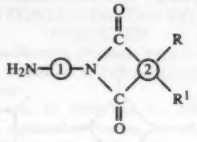
EPOXY RESIN COMPOSITIONS CURED WITH IMIDE-AMINES

Raj N. Gounder, Robbinsville, N.J., and John T. Geary, Erie, Pa., assignors to Lord Corporation, Erie, Pa.

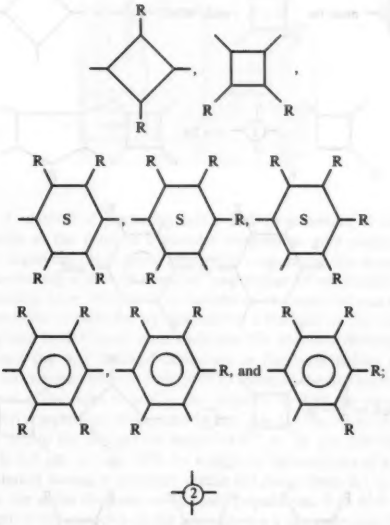
Filed May 26, 1981, Ser. No. 267,149
Int. Cl.[3] C08G 59/54
U.S. Cl. 528—99 13 Claims

1. A room temperature-stable two-pack epoxy resin system consisting essentially of

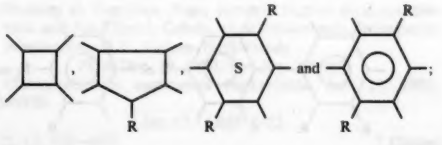
(a) a first pack comprising at least one imide-imine having the structure



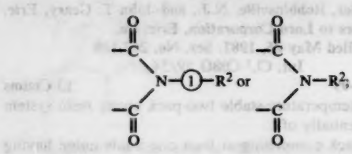
wherein —①—
is a divalent cycloaliphatic or aromatic radical selected from the group consisting of



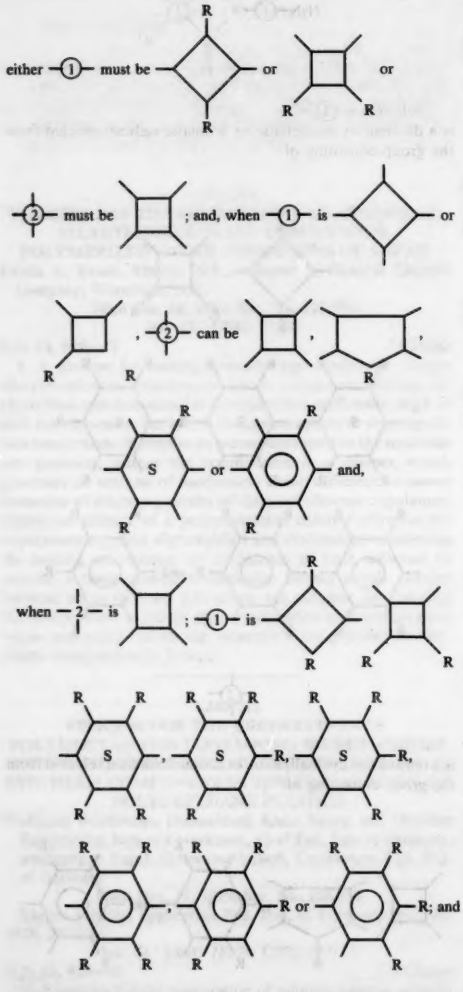
is a tetravalent cycloaliphatic or aromatic radical selected from the group consisting of



R and R^1 can be the same or different and each is selected from the group consisting of hydrogen, halogen, alkyl group having from 1 to 4 carbon atoms, hydroxyl, carboxyl and amine and when taken together, R and R^1 are:



wherein R^2 is the same as R and R^1; with the proviso that, in all cases,



(b) a second pack comprising an epoxy resin substantially free of active hydrogen having a 1,2 epoxy equivalent value of greater than 1 and capable of solubilizing said imide-amine.

4,340,716

COATING COMPOSITION

Naoaki Hata, Tokyo; Hidehiko Kojo, Koshigaya, and Koji Akimoto, Tokyo, all of Japan, assignors to Asahi Denka Kogyo K.K., Tokyo, Japan

Filed Jun. 22, 1981, Ser. No. 276,114
Claims priority, application Japan, Jun. 23, 1980, 55/84994
Int. Cl.³ C08G *59/62*
U.S. Cl. 528—100 **8 Claims**

1. A coating composition containing, as essential components,

(A) a prepolymer of epoxy resin and polyhydroxy phenolic compound selected from the group consisting of

(i) polynuclear polyhydroxy phenols having adjacent hydroxy groups,

(ii) polyol esters of polyhydroxy phenolic carboxylic acids having adjacent hydroxy groups, and

(iii) mixtures of (i) and (ii); and

(B) an organic hardener for said epoxy resin.

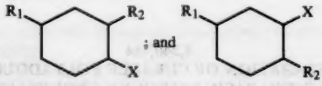
4,340,717

NITROGEN-CONTAINING COMPOUNDS

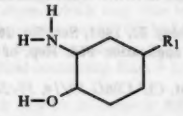
Edward W. Kluger, Pauline, S.C., assignor to Milliken Research Corporation, Spartanburg, S.C.

Filed Mar. 12, 1981, Ser. No. 243,096
Int. Cl.³ C08G *59/50*; C07C *87/38, 87/45, 91/14*
U.S. Cl. 528—111 **7 Claims**

1. Nitrogen-containing compounds selected from compounds having the following formula:



wherein X is selected from OH and NH_2, R_1 is selected from $-CH=CH_2$ and $-C_2H_5$ and R_2 is selected from $-NH_2$ and



where R_1 has the value indicated above.

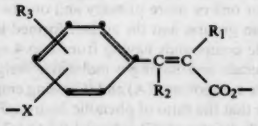
4,340,718

STABILIZED COPOLYESTER MATERIAL

Joseph S. Zannucci; Bobby J. Sublett, and Gether Irick, Jr., all of Kingsport, Tenn., assignors to Eastman Kodak Company, Rochester, N.Y.

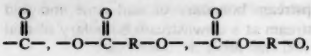
Filed Jun. 2, 1980, Ser. No. 155,811
Int. Cl.³ C08G *63/60, 63/54, 63/68*
U.S. Cl. 528—128 **4 Claims**

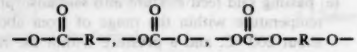
1. A copolyester having an inherent viscosity of at least 0.4 and containing in copolymerized form from about 0.3 to about 5.0% by weight of one or more of the stabilizing moieties having the general formula



where R_1 is cyano, alkylcarbonyl, cycloalkylcarbonyl or arylcarbonyl; R_2 is alkyl, cycloalkyl, or aryl; R_3 represents 1–4 groups each independently selected from H, Cl, F, alkyl, cy-

cloalkyl, alkoxy, aryl or aryloxy; wherein all of the above alkyl and alkylene moieties comprising or being part of the R_1, R_2 and R_3 groups contain from 1–8 carbons; —X— is ortho, meta, or para to the -ylene linkage and is selected from groups of the formulae





wherein R is alkylene of 1–10 carbons, arylene, or cycloalkylene; and wherein all of the above alkyl, alkylene, arylene and cycloalkylene groups may be substituted with up to three substituents selected from halogen, alkyl of 1–8 carbons, alkoxy of 1–8 carbons, aryl, cycloalkyl and CN.

4,340,719

OLIGOMERIC FORMAL DIOLS OF POLY(TETRAMETHYLENE ETHER) GLYCOL AND POLYURETHANES PREPARED THEREFROM

Engelbert Pechhold, Chadds Ford, Pa., assignor to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Filed Aug. 25, 1980, Ser. No. 180,878

Int. Cl.³ C08G *65/34*

U.S. Cl. 528—230 **2 Claims**

1. An oligomeric formal diol made by coupling two poly(tetramethylene ether) glycol segments, each having a number average molecular weight of 1000–3000, with formaldehyde.

4,340,720

PROCESS FOR PRODUCING HIGH-MOLECULAR POLYACETALS

Boris P. Grishin, ulitsa Bratskava, 8, kv. 75; Alexandr G. Gruznov, ulitsa Amurskaya, 31, kv. 72; Leonid M. Romanov, ulitsa Vavilova, 55/7, kv. 128; Julian I. Vishnyak, ulitsa Malenkovskaya, 7, kv. 1; Nina A. Shugaeva, ulitsa Oktyabrskaya, 6, korpus 1, kv. 2, all of Moscow; Nikolai M. Bychkov, Pavlovo-Posadsky R-N, 28, Sonino, Moskovskaya oblast; Konstantin V. Lipets, naberezhnaya Shevchenko, 1/2, kv. 55, and Alexandr I. Zotov, Teply Stan, 1 mikroraion, korpus 7, kv. 240, both of Moscow, all of U.S.S.R.

PCT No. PCT/SU79/00125, § 371 Date Jul. 6, 1981, § 102(e) Date Jul. 30, 1981, PCT Pub. No. WO81/01556, PCT Pub. Date Jun. 11, 1981

PCT Filed Nov. 30, 1979, Ser. No. 279,996

Int. Cl.³ C08G *2/08*

U.S. Cl. 528—232 **1 Claim**

1. A process for producing high-molecular polyacetals by polymerization of gaseous formaldehyde or copolymerization thereof with cyclic formals or cyclic oxides in an inert hydrocarbon solvent in the presence of an ionic-type catalyst at a temperature within the range of from −50° to +120° C. with the formation of a vapour phase, characterized in that formaldehyde is admitted into the reaction zone in a gas mixture which is the product of a catalytic oxidative dehydrogenation of methanol, wherefrom H_2O, CH_3OH and HCOOH have been preliminarily removed.

4,340,721

NOVEL POLYESTER FOR THE PACKAGING OF COMESTIBLES

Claude Bonnebat, Pontault Combault; Gilbert Roullet, Clamecy, and Yves Vaginay, Corbas, all of France, assignors to Rhone-Poulenc Industries, Paris, France

Filed May 19, 1981, Ser. No. 265,335

Claims priority, application France, May 20, 1980, 80 11201

Int. Cl.³ C08G *63/02*

U.S. Cl. 528—272 **15 Claims**

1. A poly(ethylene glycol)terephthalate (PET) having an intrinsic viscosity ranging from 0.65 to 1.05 dl/g and a density of more than 1.38, comprising 92.5 to 98.5% of ethylene terephthalate recurring units and 1.5 to 7.5 mol % of recurring units of at least one polybasic acid and/or polyhydric alcohol comonomeric crystallization retardant, the di- and/or triethylene glycol content thereof being less than about 3.5 mol % per mol of diacid radicals present in the polymer chain, said PET also having a residual acetaldehyde concentration of less than 1.25 ppm, with acetaldehyde being reformed therefrom at a rate of less than 5 ppm/hour, at 220° C., and said PET being devoid of visible crystallization in an at least 4 mm thick test plate shaped in a mold cavity from a melt thereof.

4,340,722

METHOD OF PREPARING HOMO AND CO-POLYMERS OF VINYL CHLORIDE ADAPTED TO GIVE PLASTISOLS FROM A LATEX CONTAINING TWO POPULATIONS OF PARTICLES

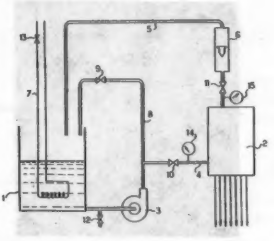
Claude Arnal; Jean-Barnard Pompon, both of Saint Auban, and Robert Roullet, Lyons, all of France, assignors to Chloe Chimie, Paris, France

Filed Oct. 23, 1980, Ser. No. 200,092

Claims priority, application France, Nov. 6, 1979, 79 27282

Int. Cl.³ C08F *6/20*

U.S. Cl. 528—480 **5 Claims**



1. A method of preparing homo and co-polymers of vinyl chloride in the form of a powder adapted to give plasticols with improved rheological properties comprising the steps of concentrating a latex of homo or co-polymer of vinyl chloride containing from 30 to 60% by weight of dry material and two populations of particles by eliminating a fraction of the aqueous phase in the liquid state such that the absolute difference between the dry material contained in the latex before and after its concentration is over 10% to increase the dry material content of the latex to within the range of 50–80% by weight, the two populations of particles in the latex having mean diameters within the respective ranges of 0.7 to 1.5 μm and from 0.12 to 0.3 μm, at least 90% by weight of the particles of each population having a diameter within the range from 0.7 to 1.6 times the mean diameter of the said population, 5 to 45% by weight of the particles of the latex having a diameter less than 0.4 μm, and drying the concentrate.

4,340,723

PROCESS FOR THE PREPARATION OF A COPOLYMER OF α-METHYLSTYRENE

Wilhelmus G. Duyzings, Born; Jozef L. M. van der Loos, Sittard, and Jan Tijssen, Geleen, all of Netherlands, assignors to Stamicarbon, B.V., Geleen, Netherlands

Filed Dec. 19, 1980, Ser. No. 218,452

Claims priority, application Netherlands, Jan. 19, 1980, 8000355

Int. Cl.³ C08F *6/22*

U.S. Cl. 528—497 **7 Claims**

1. In processes for the preparation of copolymers of α-methylstyrene and at least one other monomer of the group acrylonitrile, methacrylonitrile, methyl-methacrylate, ethylacrylate and styrene, by aqueous emulsion copolymerization, to form a

copolymer latex, and followed by coagulating the latex and recovering and drying the polymer thereby formed, the improvement in combination with said copolymerization wherein said coagulation is effected in the presence of a softener agent for said copolymer of α-methylstyrene, said softener being a solvent for said copolymer and substantially immiscible with

water, and having a boiling point below that of the boiling point of α-methylstyrene.

4,340,724

PROCESS FOR SEPARATING A KETOSE FROM AN ALDOSE BY SELECTIVE ADSORPTION

Richard W. Neuzil, Downers Grove, and James W. Priegnitz, Elgin, both of Ill., assignors to UOP Inc., Des Plaines, Ill.

Continuation-in-part of Ser. No. 690,768, May 27, 1976, Pat. No. 4,226,977. This application Mar. 27, 1978, Ser. No. 890,778

Int. Cl.³ C07H *1/06*

U.S. Cl. 536—127 **5 Claims**

1. A process for separating a fructose from a mixture comprising a fructose and a glucose which process employs an adsorbent selected from the group consisting of Y and X zeolites containing at exchangeable cationic sites thereof at least one cation selected from the group consisting of, in the case of Y zeolite, ammonium, sodium, potassium, calcium, strontium, barium and combinations thereof, and, in the case of X zeolite, barium, sodium and strontium and combinations thereof, which process comprises the steps of:

(a) maintaining net fluid flow through a column of said adsorbent in a single direction, which column contains at least three zones having separate operational functions occurring therein and being serially interconnected with the terminal zones of said column connected to provide a continuous connection of said zones;

(b) maintaining an adsorption zone in said column, said zone defined by the adsorbent located between a feed input stream at an upstream boundary of said zone and a raffinate output stream at a downstream boundary of said zone;

(c) maintaining a purification zone immediately upstream from said adsorption zone, said purification zone defined by the adsorbent located between an extract output stream at an upstream boundary of said purification zone and said feed input stream at a downstream boundary of said purification zone;

(d) maintaining a desorption zone immediately upstream from said purification zone, said desorption zone defined by the adsorbent located between a desorbent input stream at an upstream boundary of said zone and said extract output stream at a downstream boundary of said zone;

(e) passing said feed mixture into said adsorption zone at a temperature within the range of from about 20° C. to about 200° C. and a pressure within the range of from about atmospheric to about 500 psig to effect the selective adsorption of said fructose by said adsorbent in said adsorption zone and withdrawing a raffinate output stream from said adsorption zone;

(f) passing a desorbent material into said desorption zone at a temperature within the range of from about 20° C. to about 200° C. and a pressure within the range of from about atmospheric to about 500 psig to effect the displacement of said fructose and desorbent material from said desorption zone;

(g) withdrawing an extract output stream comprising said fructose and desorbent material from said desorption zone;

(h) passing at least a portion of said extract output stream to and therein separating at separation conditions at least a portion of said desorbent material to produce a fructose product stream having a reduced concentration of desorbent material; and,

(i) periodically advancing through said column of adsorbent in a downstream direction with respect to fluid flow in said adsorption zone the feed input stream, raffinate output stream, desorbent input stream, and extract output stream to effect the shifting of zones through said adsorbent and the production of extract output and raffinate output streams.

4,340,725

NOVEL COMPOUND DC-38-V AND PROCESS FOR PRODUCTION THEREOF

Fusao Tomita, Machida; Yuzura Matsuda, Koganei; Kunikatsu Shirahata, Machida; Keiichi Takahashi, Machida; Hirofumi Nakano, Machida; Tomoyasu Sato, Machida; Shuji Okubo, Matsudo, and Nobuo Nakamura, Machida, all of Japan, assignors to Kyowa Hakko Kogyo Co., Ltd., Tokyo, Japan

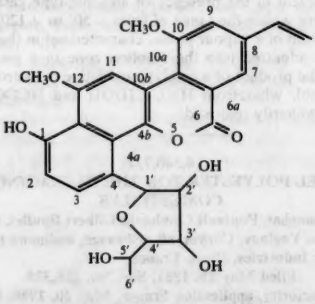
Filed Aug. 4, 1980, Ser. No. 175,324

Claims priority, application Japan, Aug. 3, 1979, 54-98656

Int. Cl.³ C07G *11/00*

U.S. Cl. 536—1.1 **1 Claim**

1. A compound of the formula



characterized by an infrared absorption spectrum substantially as shown in FIG. 1, an ultraviolet absorption spectrum substantially as shown in FIG. 2, a molecular weight of 494 determined by mass spectrometry, and a molecular formula of $C_{27}H_{26}O_9$.

4,340,726

ESTERS

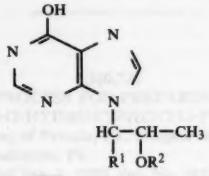
Lionel N. Simon, Santa Ana, Calif.; Alfredo Giner-Sorolla, Riverside, Conn., and Alvin Guttag, Bethesda, Md., assignors to Newport Pharmaceuticals International, Inc., Newport Beach, Calif. and Sloan-Kettering Institute for Cancer Research, New York, N.Y.

Filed Mar. 14, 1980, Ser. No. 130,334

Int. Cl.³ C07D *473/30*

U.S. Cl. 536—17.4 6 Claims

1. A compound of the formula



wherein R^1 is an n-hexyl group and R^2 is the ester group of formic acid, acetic acid, propionic acid or butyric acid, phenylalkanoic acid having 2 to 3 carbon atoms in the alkanoic acid portion, salicylic acid, a hemi ester of an alkanedioic or alkenedioic acid, phosphoric acid, nitric acid, or a glycoside of a sugar having 5 to 6 carbon atoms.

4,340,727

1,2-MODIFIED FORTIMICINS A AND B, INTERMEDIATES THEREFOR AND METHOD FOR THEIR MANUFACTURE

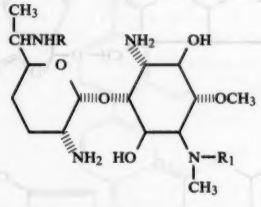
Jerry R. Martin; John S. Tadanier, both of Waukegan, and Paulette Johnson, Zion, all of Ill., assignors to Abbott Laboratories, North Chicago, Ill.

Continuation of Ser. No. 79,135, Sep. 26, 1979, Pat. No. 4,273,925. This application Oct. 28, 1980, Ser. No. 201,651

Int. Cl.³ C07H *15/22*

U.S. Cl. 536—16.1 10 Claims

1. A 1,2-di-epi-fortimicin represented by the formula:



wherein R is hydrogen or lower-alkyl; and R_1 is selected from the group consisting of hydrogen, lower-alkyl, aminoloweralkyl, diaminoloweralkyl, N-loweralkylaminoloweralkyl, N,N-diloweralkylaminoloweralkyl, hydroxyloweralkyl, amino hydroxy-loweralkyl, N-loweralkylaminohydroxyloweralkyl, N,N-diloweralkylaminohydroxyloweralkyl, acyl of the formula

wherein R_2 is loweralkyl, aminoacyl, hydroxy-substituted aminoacyl, diaminoacyl, hydroxyacyl, hydroxy-substituted diaminoacyl, N-loweralkylaminoacyl, N,N-diloweralkylaminoacyl, hydroxy-substituted-N-loweralkylaminoacyl and hydroxy-substituted-N,N-diloweralkylaminoacyl wherein each acyl is of the formula

R_2 being loweralkyl, and the pharmaceutically acceptable salts thereof.

4,340,728

NUCLEOSIDE DERIVATIVES AND PROCESS FOR PREPARING SAME

Takeshi Endo, Kamiichi; Katsumi Sakai, Jamiichi; Kiyoaki Chou, Kamiichi; Yoshitaka Inamoto, Namerikawa, and Haruhiko Teshigawara, Kamiichi, all of Japan, assignors to Fuji Kagaku Kogyo Kabushiki Kaisha, Toyama, Japan

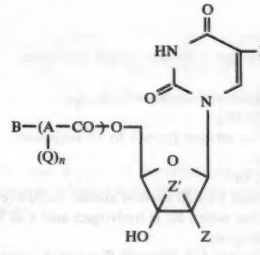
Filed Nov. 26, 1980, Ser. No. 210,796

Claims priority, application Japan, Nov. 28, 1979, 54-152922; Dec. 27, 1979, 54-169201

Int. Cl.³ C07H *19/06, 19/08*

U.S. Cl. 536—23 7 Claims

1. A nucleoside derivative of the formula:



(I)

wherein (A—CO)– is a residue of a saturated straight or branched chain fatty acid having 1 to 17 carbon atoms in the alkyl moiety A thereof, B is selected from the group consisting of substituted or unsubstituted amino groups bound in the α- or ω-position, substituted or unsubstituted hydrazino groups, substituted or unsubstituted guanidino groups, diazo, azido, nitro, isocyano and 3–6 membered heterocyclic amino groups in which the ring carbon chain may be interrupted by one or more hetero atoms, with the proviso that when B is a substituted or unsubstituted amino group said amino group may be combined together with the carbon atoms in the alkyl moiety A to form a ring, Q is selected from the group consisting of hydroxyl, mercapto, alkoxy, aralkoxy, alkylmercapto, aralkylthio, substituted or unsubstituted carboxyl, substituted or unsubstituted amino, phenyl, hydroxyphenyl, sulfinyl, indolyl, imidazolyl, guanidyl and dithio connected at one end to the alkyl moiety of an amino acid, Z is H, Z′ is H or OH, and n is zero or an integer of at least 1, or a physiologically acceptable salt thereof.

4,340,729

5′-DEOXY-5-FLUOROURIDINE

Richard D'Souza, Basel, and Joseph Kiss, Arlesheim, both of Switzerland, assignors to Hoffmann-La Roche Inc., Nutley, N.J.

Filed Jun. 5, 1980, Ser. No. 156,590

Claims priority, application Switzerland, Jun. 12, 1979, 5625/79

Int. Cl.³ C07H *19/06*

U.S. Cl. 536—23 2 Claims

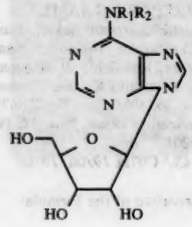
1. A compound of the formula 1-(5-deoxy-2,3-di-O-acyl-β-D-ribofuranosyl)-5-fluorouracil wherein acyl represents a group which is a residue of an aliphatic or aromatic acid capable of being used as a protecting group in sugar chemistry.

4,340,730
N^6-SUBSTITUTED ADENOSINES

Richard E. L. Henderson, Evanston; Nancy J. Malek, Skokie; Alan E. Moormann, Skokie, and Barnett S. Pitzele, Skokie, all of Ill., assignors to G. D. Searle & Co., Skokie, Ill.

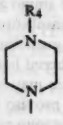
Continuation-in-part of Ser. No. 157,625, Jun. 9, 1980, abandoned. This application Jan. 30, 1981, Ser. No. 229,824
Int. Cl.³ C07H *19/16*
U.S. Cl. 536—26 16 Claims

1. A compound according to the formula:



I

where in R_1 is:
(a) hydrogen; or
(b) alkyl of from 1 to 6 carbon atoms inclusive;
where R_2 is:
(a) 4-(N,N-dimethylaminophenethyl);
(b) $-(CH_2)_nCOOR_5$;
wherein n is an integer from 3 to 11 inclusive;
wherein R_5 is:
(a) hydrogen; or
(b) alkyl of from 1 to 20 carbon atoms, inclusive with the provision that when R_1 is hydrogen and n is 5, R_5 cannot be hydrogen;
(c) 3(11,11-dihydro-5H-dibenz[b,f]azepin-5-yl)propyl;
or wherein R_1 and R_2 taken together with N form a piperazine ring of the formula:



II

wherein R_4 is:
(a) ethoxycarbonyl.

4,340,731
POLYCARBOXYALKYL-CELLULOSE HAVING HIGH FLUID ABSORBING AND RETAINING PROPERTIES, AND PROCESS FOR PREPARING SAME

Virginio Colombo, Melzo; Alberto Nicoletti, and Benito Casu, both of Milan, all of Italy, assignors to Montedison S.p.A., Milan, Italy

Filed Jun. 19, 1980, Ser. No. 160,990
Claims priority, application Italy, Jun. 20, 1979, 23716 A/79
Int. Cl.³ C08B *11/12, 11/20*
U.S. Cl. 536—87 7 Claims

1. Polycarboxyalkyl-cellulose having a degree of substitution greater than 0.35, a cross-linkage comprised between 5% and up to 75% of the substituted groups, a water-solubility below 40% by weight, an absorption and retention of the water comprised between 7,000 and 25,000 ml/100 g of pure product, an absorption and retention of saline solutions or of plasmatic and physiological liquids comprised between 2,500 and 6,000 ml/100 g of pure product, and a pH between 5.5 and 6.4.

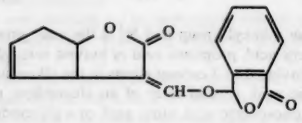
4,340,732
BUTENOLIDE HERBICIDES AND PROCESS FOR THEIR PREPARATION

Alan W. Johnson, c/o The School of Molecular Sciences, University of Sussex, Falmer, Brighton, England (BN1 9QJ), and Ahmed Hassanali-Walji, P.O. Box 786, Dar-es-Salaam, United Rep. of Tanzania

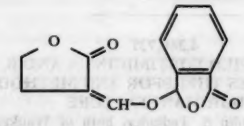
Filed Feb. 20, 1980, Ser. No. 123,257
Int. Cl.³ A01N *43/26;* C07D *407/12*
U.S. Cl. 542—426 4 Claims

1. A compound represented by one of the formulae IIA, IIIA, IVA, VA, VIA, VIIA, IXA and XA as follows:

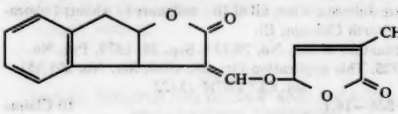
IIA



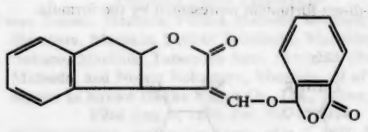
IIIA



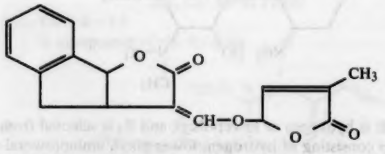
IVA



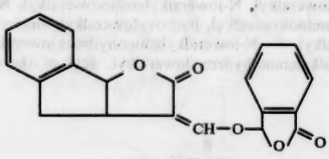
VA



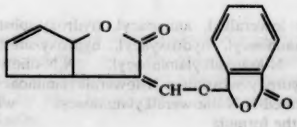
VIA



VIIA



IXA



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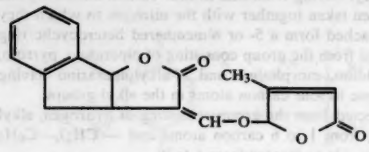
XA



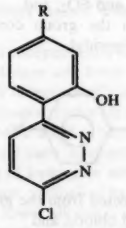
4,340,733

PROCESS FOR PREPARING 3-CHLORO-6-(2-HYDROXYPHENYL)-PYRIDAZINES

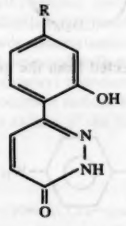
Bing L. Lam, King of Prussia, Pa., assignor to SmithKline Corporation, Philadelphia, Pa.

Filed Sep. 2, 1980, Ser. No. 182,913
Int. Cl.³ C07D *237/12*
U.S. Cl. 544—224 3 Claims

1. A process for preparing a pyridazine compound of the formula:



in which R is hydrogen or lower alkyl, which comprises reacting a pyridazinone of the formula:



with phosphorus oxychloride and a dilower alkylformamide.

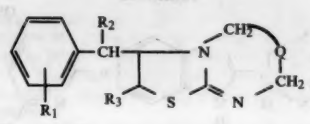
4,340,734

3-(α-SUBSTITUTED-BENZYL)-2,3-DIHYDROTHIAZOLO [3,2-A][1,3]DIAZACYCLAN-3-OL DERIVATIVES

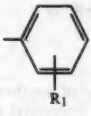
Andrews S. Tomcufcik, Old Tappan; William B. Wright, Jr., Woodcliff Lake, both of N.J., and Joseph W. Marsico, Jr., Pearl River, N.Y., assignors to American Cyanamid Company, Stamford, Conn.

Filed Nov. 14, 1980, Ser. No. 206,803
Int. Cl.³ C07D *513/04;* A61K *31/54, 31/55*
U.S. Cl. 544—282 27 Claims

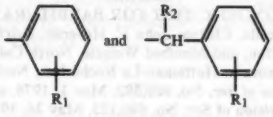
1. A compound selected from those of the formula:



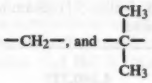
wherein R_1 is hydrogen, fluoro, chloro, bromo, alkyl having from 1 to 3 carbon atoms or alkoxy having from 1 to 3 carbon atoms; R_2 is hydrogen or



wherein R_1 is as hereinbefore defined; R_3 is hydrogen, alkyl having from 1 to 3 carbon atoms, or a moiety selected from the group consisting of those of the formulae:



wherein R_1 and R_2 are as hereinbefore defined, and Q is a divalent moiety selected from the group consisting of those of the formulae:



as well as the pharmaceutically acceptable salts thereof.

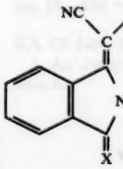
4,340,735

ISOINDOLINE COLORANTS

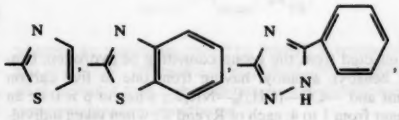
Wolfgang Lotsch, Beindersheim, and Reinhard Kemper, Heidelberg, both of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Fed. Rep. of Germany

Filed Jan. 22, 1981, Ser. No. 227,251
Claims priority, application Fed. Rep. of Germany, Feb. 27, 1980, 3007329
Int. Cl.³ C09B *57/04*
U.S. Cl. 544—300 6 Claims

1. An isoindoline colorant of the formula



wherein R^1 is



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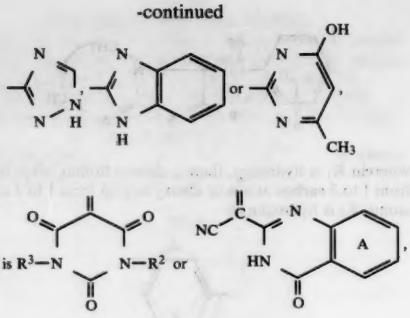


R^2 and R^3 independently of another are hydrogen, C_1–C_4-alkyl, benzyl, phenyl or 1-naphthyl and R^1, the phenyl and naphthyl radicals, and the ring A are unsubstituted or substituted by groups which do not cause solubility of the colorant in water or organic solvents.

4,340,736

DIAGNOSTIC TEST FOR BARBITURATES

Antonino Focella, Clifton; John E. Heveran, Fairfield; Sidney Teitel, Clifton, and Manfred Weigele, North Caldwell, all of N.J., assignors to Hoffmann-La Roche Inc., Nutley, N.J.

Continuation of Ser. No. 901,382, May 1, 1978, abandoned, which is a division of Ser. No. 690,123, May 26, 1976, Pat. No. 4,101,549. This application Dec. 5, 1979, Ser. No. 100,328

Int. Cl.³ C07D *239/62*

U.S. Cl. 544—301 **2 Claims**

1. The compound 5-allyl-5-[1-(4-aminobutyl)carbamoyl-isopropyl]barbituric acid.

2. The compound 5-allyl-5-[1-(3-aminopropyl)carbamoyl-isopropyl]barbituric acid.

4,340,737

9-HYDROXYOCTAHYDROBENZO[C]QUINOLINES AND INTERMEDIATES THEREFOR

Michael R. Johnson, Groton, Conn., assignor to Pfizer Inc., New York, N.Y.

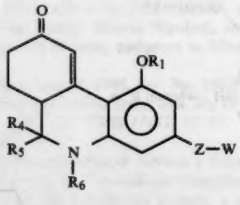
Division of Ser. No. 42,773, May 29, 1979, Pat. No. 4,260,764, which is a continuation-in-part of Ser. No. 777,928, Mar. 15, 1977, abandoned, which is a continuation-in-part of Ser. No. 753,619, Dec. 22, 1976, abandoned, which is a continuation-in-part of Ser. No. 687,332, May 17, 1976, abandoned. This application Oct. 3, 1980, Ser. No. 193,822

The portion of the term of this patent subsequent to Jun. 3, 1997, has been disclaimed.

Int. Cl.³ C07D *221/12*; A61K *31/47*

U.S. Cl. 546—108 **6 Claims**

1. A compound having the formula:



wherein

R_1 is selected from the group consisting of hydrogen, benzyl, benzoyl, alkanoyl having from one to five carbon atoms and $—CO—(CH_2)_p—NR_2R_3$ wherein p is 0 or an integer from 1 to 4; each of R_2 and R_3 when taken individually is selected from the group consisting of hydrogen and alkyl having from one to four carbon atoms; R_2 and R_3 when taken together with the nitrogen to which they are attached form a 5- or 6-membered heterocyclic ring selected from the group consisting of piperidino, pyrrolo, pyrrolidino, morpholino and N-alkylpiperazino having from one to four carbon atoms in the alkyl groups;

R_4 is selected from the group consisting of hydrogen, alkyl having from 1 to 6 carbon atoms and $—(CH_2)_z—C_6H_5$ wherein z is an integer from 1 to 4;

R_5 is selected from the group consisting of hydrogen, methyl and ethyl;

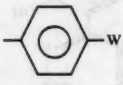
R_6 is selected from the group consisting of hydrogen, $—(CH_2)_y—$ carbalkoxy having from one to four carbon atoms in the alkoxy group and wherein y is 0 or an integer from 1 to 4, carbobenzyloxy, formyl, alkanoyl having from two to five carbon atoms, alkyl having from one to six carbon atoms; $—(CH_2)_x—C_6H_5$ wherein x is an integer from 1 to 4; and $—CO(CH_2)_{x-1}—C_6H_5$;

Z is selected from the group consisting of

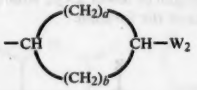
(a) alkylene having from one to nine carbon atoms;

(b) $—(alk_1)_m—X—(alk_2)_n—$ wherein each of (alk_1) plus (alk_2) is alklylene having from one to nine carbon atoms, with the proviso that the summation of carbon atoms in (alk_1) plus (alk_2) is not greater than nine; each of m and n is 0 or 1; X is selected from the group consisting of O, S, SO and SO_2; and

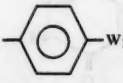
W is selected from the group consisting of hydrogen, methyl, pyridyl, piperidyl,



wherein W_1 is selected from the group consisting of hydrogen, fluoro and chloro; and



wherein W_2 is selected from the group consisting of hydrogen and



a is an integer from 1 to 5 and b is 0 or an integer from 1 to 5; with the proviso that the sum of a and b is not greater than 5; and the ketals thereof wherein the ketal moiety has from two to four carbon atoms.

4,340,738

2,3-DIHYDRO-IMIDAZO[2,1-b]BENZOTHIAZOLES

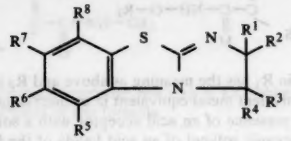
Victor Sipido, Merksem, Belgium, assignor to Janssen Pharmaceutica, N.V., Beerse, Belgium

Division of Ser. No. 50,734, Jun. 21, 1979, Pat. No. 4,262,004. This application Jan. 9, 1981, Ser. No. 223,544

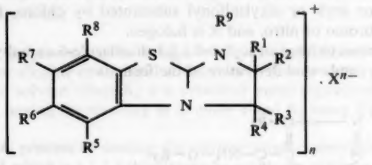
Int. Cl.³ C07D *277/60*

U.S. Cl. 548—151 **2 Claims**

1. A chemical compound selected from the group consisting of a 2,3-dihydroimidazo[2,1-b]benzothiazole which may structurally by represented by the formula



and the pharmaceutically acceptable acid addition salts thereof, the pharmaceutically acceptable imidazo[2,1-b]benzothiazolium salts of formula

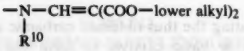


and metal salt complexes thereof with a transition metal salt wherein:

R^1 and R^3 are each independently selected from the group consisting of hydrogen and lower alkyl;

R^2 and R^4 are each independently selected from the group consisting of hydrogen, lower alkyl, aryl, aryllower alkyl, lower alkyloxylower alkyl or aryloxylower alkyl;

R^5, R^6, R^7 and R^8 are each independently selected from the group consisting of hydrogen; nitro; alkyl having from 1 to 20 carbon atoms; cycloalkyl having from 3 to 6 carbon atoms; hydroxy; lower alkyloxy; aryloxy; α-hydroxyarylmethyl; amino; mono- and dialkyl-amino; mono-, di- and trihalo-lower alkyl-amino; lower alkenylamino; lower alkynylamino (aryllower alkyl)amino; (lower alkyloxy-lower alkyl)amino; (hydroxy-lower alkyl)amino; (aryloxy-lower alkyl)amino; [mono- and di(lower alkyl-)amino-lower alkyl]amino; lower alkanoylamino; N-(lower alkyl)-lower alkanoylamino; aminocarbonylamino; (1-lower alkyl-4-piperidinyl)amino; cycloalkylamino wherein said cycloalkyl represents a mono-, bi-, tri- or tetracyclic hydrocarbon radical having from 3 to 10 carbon atoms; and a radical of the formula



wherein

R^{10} is selected from the group consisting of hydrogen, lower alkyl, lower alkenyl and lower alkynyl; or when taken together R^5 and R^6, R^6 and R^7, or R^7 and R^8 may form a tri- or tetramethylene bridge or complete a fused benzene nucleus;

R^9 is a member selected from the group consisting of lower alkyl, lower alkenyl, lower alkynyl and aryl lower alkyl; and

X is a pharmaceutically acceptable anion and n represents the valency of the anion;

wherein aryl as used in the foregoing definitions is phenyl, optionally substituted with 1 to 3 substituents each independently selected from the group consisting of halo, lower alkyl, lower alkyloxy and trifluoromethyl; and aroyl is arylcarbonyl.

4,340,739

N-HALOMETHYLANILIDES

Peter Plath, Ludwigshafen; Karl Eicken, Wachenheim, and Wolfgang Rohr, Mannheim, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Fed. Rep. of Germany

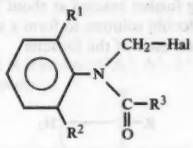
Filed Nov. 30, 1979, Ser. No. 99,018

Claims priority, application Fed. Rep. of Germany, Dec. 18, 1978, 2854599

Int. Cl.³ C07D *261/08, 263/32, 367/30, 333/12*

U.S. Cl. 548—236 **2 Claims**

1. A compound of the general formula



where R^1 is methyl, ethyl, isopropyl, methoxy or chlorine, R^2 is methyl, ethyl, isopropyl or chlorine, R^3 is is a 5-membered or 6-membered heterocyclic radical selected from the group consisting of thien-2-yl, thienyl-3-yl, fur-2-yl, fur-3-yl, 2,5-dimethylfur-3-yl, 4-chlorothien-3-yl, 2-chloropyrid-3-yl, 2,6-dichloropyrid-4-yl, 3-methylisoxazol-5-yl or 4-methyl-oxazol-5-yl, or is $—CH_2Y$ or

where Y is C_1–C_4-alkylthio or is phenoxy or phenylthio which are unsubstituted or are monosubstituted or polysubstituted by chlorine, fluorine, methyl, trifluoromethyl or nitro, or R^3 is $—X—R^4$, where X is oxygen or sulfur and R^4 is phenyl which is unsubstituted or is monosubstituted or disubstituted by fluorine, chlorine, bromine, trifluoromethyl, C_1–C_4-alkyl, nitro, methoxy or methylthio, and Hal is fluorine, chlorine or bromine.

4,340,740

ALPHA-THIO-ALPHA-ARYL-SUBSTITUTED ALKANONITRILE AND PROCESS FOR PREPARING ALPHA-ARYL-SUBSTITUTED ALKANONITRILE THEREFROM

Genichi Tsuchihashi, Tama; Shuichi Mitamura, Sagamihara, and Katsuyuki Ogura, Narashino, all of Japan, assignors to Sagami Chemical Research Center, Tokyo, Japan

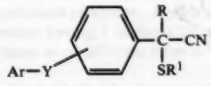
Filed Jul. 15, 1980, Ser. No. 169,193

Claims priority, application Japan, Jul. 16, 1979, 54/89357; Jul. 19, 1979, 54/90959; Mar. 28, 1980, 55/38954

Int. Cl.³ C07D *277/74*

U.S. Cl. 548—169 **3 Claims**

1. An alpha-thio-alpha-aryl-substituted alkanonitrile of the formula



wherein Ar represents phenyl or thienyl, R represents hydrogen or alkyl, R^1 represents alkyl, phenyl, phenyl substituted by alkyl having 1 to 4 carbon atoms, or 2-benzothiazolyl, and Y represents oxygen or carbonyl.

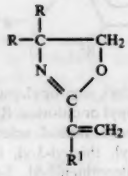
4,340,741

PROCESS FOR MAKING VINYL OXAZOLINE DRYING OIL ESTERS

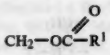
Joseph A. Vasta, Wilmington, Del., assignor to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Filed Dec. 1, 1980, Ser. No. 211,584
Int. Cl.³ C07D 263/14
U.S. Cl. 548—237 7 Claims

1. An improved process for preparing a vinyl oxazoline drying oil ester which comprises reacting at about 150°–225° C., in the presence of solvent, drying oil fatty acids with tris(-hydroxymethyl) amino methane to form an intermediate, said intermediate being further reacted at about 175°–190° C. with a formaldehyde alcohol solution to form a solution of a vinyl oxazoline drying oil ester of the formula



where R is



and R^1 is the residue of a drying oil fatty acid;

the improvement used therewith comprises the use of at least 3 moles of formaldehyde to one mole of intermediate and about 1–5% by weight, based on the weight of the intermediate of methanol and adding after the reaction with formaldehyde about 5–25% by weight, based on the weight of the ester solution, of an alcohol having 1–6 carbon atoms, a ketone having 3–7 carbon atoms or a mixture of said alcohol and ketone.

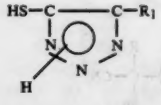
4,340,742

PROCESS FOR MAKING 5-MERCAPTO-1,2,3-TRIAZOLES

Hans-Rudolf Krüger, Berlin, Fed. Rep. of Germany, assignor to Schering AG, Berlin and Bergkamen, Fed. Rep. of Germany

Filed May 19, 1980, Ser. No. 151,110
Claims priority, application Fed. Rep. of Germany, May 21, 1979, 2920939
Int. Cl.³ C07D 249/04, 285/06
U.S. Cl. 548—255 15 Claims

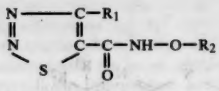
1. A process for making 5-mercapto-1,2,3-triazoles of the formula



I

wherein R_1 is hydrogen, C_1–C_4-alkyl or a C_1–C_4-alkyl substituted by chloro, methylthio or hydroxy, said process comprising

(1) as a first step reacting a solution of 1,2,3-thiadiazole-5-carbohydroxamic acid derivative of the formula



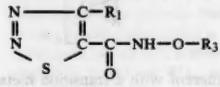
II

wherein R_1 has the meaning as above and R_2 is hydrogen or a univalent metal equivalent in an inert organic solvent in the presence of an acid acceptor with a solution in an inert organic solvent of an acid halide of the formula

III

wherein R_3 is C_1–C_4-alkylcarbonyl, C_1–C_4-alkylcarbonyl substituted by chloro, dichloro, trichloro, bromo or methoxy, C_1–C_4-alkoxycarbonyl, benzoyl, benzoyl substituted by chloro, methyl or methoxy, aryl- or alkylsulfonyl or aryl- or alkylsulfonyl substituted by chloro, fluoro, bromo or nitro, and X is halogen,

so as to form an acylated 1,2,3-thiadiazole-5-carbohydroxamic acid derivative of the formula



IV

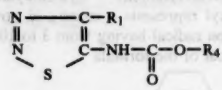
wherein R_1 and R_3 have the same meaning as above (first step), and

(2) reacting as a solution in an inert organic solvent the carbohydroxamic acid derivative just obtained with an alcohol or phenol of the formula

V

wherein R_4 is C_1–C_4-alkyl, C_5–C_8-cycloalkyl, aryl-C_1–C_3-alkyl, aryl-C_1–C_3-alkyl substituted by chloro, dichloro, methyl, dimethyl or methoxy, or an aromatic hydrocarbon residue which may be substituted in one or several positions by C_1–C_6-alkyl, halogen, C_1–C_6-alkoxy, nitro and/or trifluoromethyl

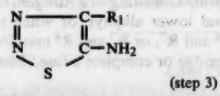
so as to form a (1,2,3-thiadiazole-5-yl)-carbamic acid ester of the formula



VI

wherein R_1 and R_4 have the meaning as above (second step),

(3) then treating the thus obtained carbamic acid ester with an acidic or basic catalyst to form the 5-amino-1,2,3-thiadiazole of the formula

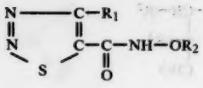


VII

(step 3)

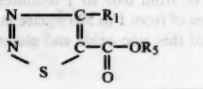
(4) whereupon said amino thiadiazole is not isolated from the reaction mixture and is subject to a rearrangement in the presence of a base followed by isolation of the product of the reaction (step 4).

13. A process for making the starting product employed in the reaction of claim 1, said starting product being a 1,2,3-thiadiazole-5-carbohydroxamic acid or a salt thereof of the formula



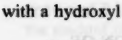
II

and said process comprising reacting a 1,2,3-thiadiazole-carboxylic acid ester of the formula



VIII

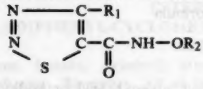
with a hydroxyl amine of the formula



IX

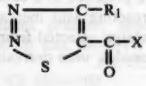
and in the presence of an inorganic base or an alcoholate of an alkali or alkaline earth metal which may be dissolved in a polar organic solvent when R_2 is a univalent metal equivalent, R_2 and X having the meaning as in claim **1** and R_5 being C_1–C_6-alkyl.

14. A process of making the starting product employed in claim **1** which is a 1,2,3-thiadiazole-5-carbohydroxamic acid or a salt thereof of the formula



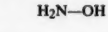
II

said process comprising reacting a 1,2,3-thiadiazole-5-carboxylic acid halide of the formula



X

wherein R_1 has the meaning as in claim **1** with a hydroxylamine of the formula



IX

the reaction being carried out in the presence of an inert solvent to which may be added an acid acceptor when R_2 is a univalent metal equivalent, R_2 having the meaning as in claim **1** and X being a halogen.

4,340,743

DERIVATIVES OF MONO-(ALKYLENE UREIDO ALKYL) UREAS, AND BIS-(ALKYLENE UREIDO ALKYL) UREAS

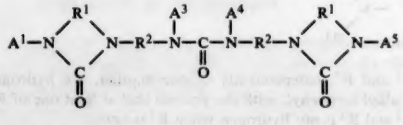
Joseph M. Sandri, Arnold; John W. Calentine, Pasadena; Seymour M. Linder, and Yves J. Billioux, both of Baltimore, all of Md., assignors to Alcolac Inc., Baltimore, Md.

Continuation-in-part of Ser. No. 157,238, Jun. 6, 1980. This application Jun. 27, 1980, Ser. No. 163,488

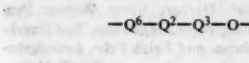
Int. Cl.³ C07D *233/36*

U.S. Cl. 548—318 **17 Claims**

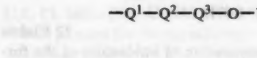
1. A compound having the formula:



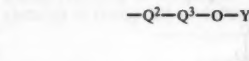
where A^1 and A^5 are each independently H, Q^6H or



A^3 and A^4 are each independently H, Q^1H or



provided that at least one of A^1, A^3, A^4 and A^5 is a group having the moiety



R^1 is alkylene having 2 to 3 carbon atoms;

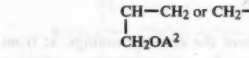
R^2 is alkylene having 2 to about 10 carbon atoms;

R^3 is H or CH_3;

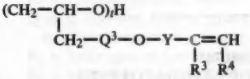
R^4 is H or CH_3 and may be the same as or different from R^3;

Q^1 is $(R^5\text{-}O)_m$ where m is zero or an integer from 1 to about 100, and R^5 is a linear or branched alkylene, alkoxyalkylene, cycloalkylene, cycloalkoxyalkylene, arylalkylene, or aryloxyalkylene residue having 2 to about 20 carbon atoms;

Q^2 is



where A^2 is H,



or

where t is zero or an integer from 1 to 10;

Q^3 is $(O\text{-}R^6)_n$ where n is zero or an integer from 1 to about 100 and may be the same as or different from m, and R^6 is a linear or branched alkylene, alkoxyalkylene, cycloalkylene, cycloalkoxyalkylene, arylalkylene or aryloxyalkylene residue having 2 to about 20 carbon atoms, and may be the same as or different from R^5;

Q^6 is $(R^9\text{-}O)_r$ where r is zero or an integer from 1 to about 100 and may be the same as or different from m and n and R^9 is a linear or branched alkylene, alkoxyalkylene, cycloalkylene, cycloalkoxyalkylene, arylalkylene, or aryloxyalkylene residue having 2 to about 20 carbon atoms, and may be the same as or different from R^5 and R^6; and

Y is CH_2 or

4,340,744

PREPARATION OF IMIDAZOLES

Helmut Schwarz, Ludwigshafen; Toni Dockner, Meckenheim; Uwe Kempe, Limburgerhof; Herbert Krug; Werner Praetorius, both of Ludwigshafen; Peter Magnussen, Bad Duerkheim; Ewald Gallei, Viernheim, and Erich Fehr, Ludwigshafen, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Fed. Rep. of Germany

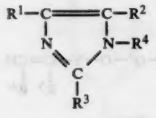
Filed Mar. 9, 1981, Ser. No. 242,012

Claims priority, application Fed. Rep. of Germany, Mar. 13, 1980, 3009631

Int. Cl.³ C07D *231/12*

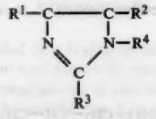
U.S. Cl. 548—346 12 Claims

1. In a process for the preparation of imidazoles of the formula



I

where R^1, R^2, R^3 and R^4 may be identical or different and each is an aliphatic, cycloaliphatic araliphatic or aromatic radical or hydrogen, by reacting imidazolines in the presence of a metal catalyst at elevated temperature, the improvement which comprises reacting a 2-imidazoline of the formula



II

where R^1, R^2, R^3 and R^4 have the above meanings, at from 250° to 500° C. in the presence of a catalyst mixture containing at least three components and consisting essentially of (a) molybdenum oxide and (b) nickel oxide and/or cobalt oxide and (c) aluminum oxide and/or silicon dioxide and/or silicates.

4,340,745

PREPARATION OF 2-IMIDAZOLINES

Toni Dockner, Meckenheim; Uwe Kempe, Limburgerhof; Herbert Krug, Ludwigshafen; Peter Magnussen, Bad Durkheim, and Werner Praetorius, Ludwigshafen, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Fed. Rep. of Germany

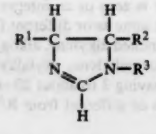
Filed Mar. 9, 1981, Ser. No. 242,011

Claims priority, application Fed. Rep. of Germany, Mar. 13, 1980, 3009633

Int. Cl.³ C07D *231/06*

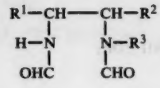
U.S. Cl. 548—347 15 Claims

1. In a process for the preparation of a 2-imidazoline of the formula



I

where R^1, R^2 and R^3 may be identical or different and each is an aliphatic, araliphatic or aromatic radical or is hydrogen, by reacting an N,N'-diformylalkylenediamine over a metal oxide catalyst, the improvement which comprises reacting an N,N'-diformyl-1,2-diamine of the formula



II

where R^1, R^2 and R^3 have the above meanings, in the gas phase, at from 200° to 350° C., in the presence of from 5 to 40 moles of an inert gas per mole of starting material II, over zinc oxide having a pore volume of from 0.05 to 1 milliliter per gram and a specific surface area of from 1 to 500 square meters per gram, or over a mixture of this zinc oxide and aluminum oxide, as the catalyst.

4,340,746

PROCESS FOR THE PREPARATION OF THIOCHLOROFORMATES

Günther Semler, Kelkheim, and Georg Schaeffer, Hofheim am Taunus, both of Fed. Rep. of Germany, assignors to Hoechst Aktiengesellschaft, Frankfurt am Main, Fed. Rep. of Germany

Filed Aug. 26, 1980, Ser. No. 181,428

Claims priority, application Fed. Rep. of Germany, Aug. 28, 1979, 2934657

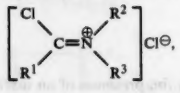
Int. Cl.³ C07C *153/11*; C07D *333/10, 307/38*

U.S. Cl. 549—78 9 Claims

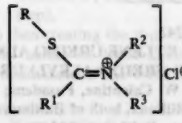
1. In a process for the preparation of a thiochloroformate by reacting a mercaptan of the formula

R—SH,

in which R is alkyl, cycloalkyl, alkenyl, aryl or aralkyl, or alkyl, cycloalkyl, alkenyl, aryl or aralkyl substituted by one or more substituents selected from the group consisting of halogen radicals, alkoxy radicals, aryloxy radicals, carboalkoxy radicals and SH, with phosgene in the presence of a catalyst, the improvement which comprises reacting said mercaptan with phosgene in the presence of a catalyst selected from the group consisting of carboxylic acid amides, urea derivatives, compounds of the formula



compounds of the formula

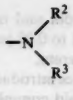


and mixtures of two or more of the foregoing, wherein

R is as defined above,

R^1 is hydrogen, alkyl, phenyl or

R^2 and R^3, independently of one another, are hydrogen, alkyl or phenyl, with the proviso that at least one of R^1, R^2 and R^3 is not hydrogen when R^1 is not



and at least one of R^2 and R^3 is not hydrogen when R^1 is

or two of R^1, R^2 and R^3, together, are alkylene,

the amount of said catalyst being of from about 0.02 to 0.2 mol percent relative to the amount of the mercaptan.

4,340,747
ESTERS OF 1,2-DIPHENYL-CYCLOHEX-1-ENE-4-CARBOXYLIC-ACID

Verena Laanio, Arisdorf; Werner Föry, Basel, and Rolf Schurter, Binningen, all of Switzerland, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

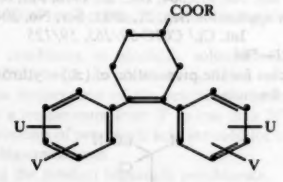
Division of Ser. No. 918,212, Jun. 22, 1978, Pat. No. 4,229,207, which is a continuation-in-part of Ser. No. 713,477, Aug. 11, 1976, abandoned. This application May 19, 1980, Ser. No. 151,034

Claims priority, application Switzerland, Aug. 15, 1975, 1664/75; Aug. 15, 1975, 1665/75; Aug. 15, 1975, 1666/75

Int. Cl.³ C07C *79/46, 69/76*

U.S. Cl. 560—102 **11 Claims**

1. An ester of 1,2-diphenyl-cyclohex-1-ene-4-carboxylic acid of the formula



wherein

R is C_1–C_7 alkyl optionally substituted by halogen, nitro, C_1–C_4 alkoxy, C_3–C_8 cycloalkyl, by phenyl or phenoxy unsubstituted or substituted by chlorine, bromine, C_1–C_4 alkyl or C_1–C_4 alkoxy; C_3–C_7 alkenyl optionally substituted by chlorine or C_1–C_4 alkyl; C_3–C_7 alkynyl; C_3–C_6 cycloalkyl optionally substituted by chlorine; phenyl or benzyl unsubstituted or substituted by chlorine, bromine, C_1–C_4 alkyl, C_1–C_4 alkoxy, nitro, amino, mono- or di(C_1–C_4)alkylamino or trifluoromethyl

and

U and V are each selected from the group consisting of hydrogen, chlorine, bromine, C_1–C_4 alkyl, C_1–C_4 alkoxy, nitro and trifluoromethyl,

with the proviso that if all U's and V's are hydrogen, R is not unsubstituted alkyl.

4,340,748
PROCESS FOR THE MANUFACTURE OF GLYOXYLIC ACID ESTERS

Herbert Baltes, Frankfurt am Main; Ernst I. Leupold, Neu-Anspach, and Friedrich Wunder, Flörsheim am main, all of Fed. Rep. of Germany, assignors to Hoechst Aktiengesellschaft, Frankfurt am Main, Fed. Rep. of Germany

Filed Feb. 6, 1980, Ser. No. 118,923

Claims priority, application Fed. Rep. of Germany, Feb. 8, 1979, 2904775

Int. Cl.³ C07C *67/313, 69/67*

U.S. Cl. 560—177 **10 Claims**

1. A process for the manufacture of a glyoxylic acid ester by dehydrogenation of a glycolic acid ester in the gaseous phase which comprises contacting said glycolic acid ester with a catalyst containing, as an active component, V, Mo, Ag, Cu, or a combination thereof, and a catalytic promoter containing an effective amount of at least one element selected from the group consisting of Sn, Sb, Bi, elements of Group IA and elements of Group IIA of the Periodic Table.

4,340,749
CARPET TREATMENT

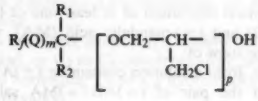
Kalyanji U. Patel, Saint Paul Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Division of Ser. No. 101,515, Dec. 21, 1979, Pat. No. 4,264,484, which is a continuation-in-part of Ser. No. 6,252, Jan. 24, 1979, abandoned. This application Dec. 8, 1980, Ser. No. 214,324

Int. Cl.³ C07C *69/704*

U.S. Cl. 560—182 **2 Claims**

1. An ester of a fluoroaliphatic radical- and aliphatic chlorine-containing alcohol and a mono- or polycarboxylic acid, said alcohol having the formula



where

R_f is a fluoroaliphatic radical,

Q is a divalent linking group free of epoxy-reactive and isocyanate-reactive protons,

R_1 is hydrogen or lower alkyl,

R_2 is hydrogen, lower alkyl, or aryl of 6 to 12 carbons,

m is zero or 1, and

p is an integer of 1–5 said alcohol having more than 25 weight % carbon-bonded fluorine in the form of said fluoroaliphatic radical, said ester having at least one major transition temperature greater than 25° C.

4,340,750
PROCESS FOR PRODUCING FLUOROVINYL ETHER

Masaaki Yamabe, Machida; Seisaku Kumai, Yokohama, and Seiji Munekata, Tokyo, all of Japan, assignors to Asahi Glass Company, Ltd., Tokyo, Japan

Division of Ser. No. 65,347, Aug. 9, 1979, Pat. No. 4,275,226. This application Oct. 29, 1980, Ser. No. 201,916

Claims priority, application Japan, Aug. 25, 1978, 53-102686; Aug. 25, 1978, 53-102687

The portion of the term of this patent subsequent to Jun. 23, 1998, has been disclaimed.

Int. Cl.³ C07C *69/734, 143/00, 57/065, 41/24*

U.S. Cl. 560—183 **12 Claims**

1. A process for producing a fluorovinyl ether having the formula:

$$XR_fCF_2OCF{=}CF_2 \qquad (I)$$

wherein X represents —H, —Cl, —Br, —F, —CO_2R, —CONRR′, —SO_2F,

$$-P(OR)_2,$$

or —COF, and R represents a C_1–C_{10} alkyl group; R′ represents —H or a C_1–C_{10} alkyl group; R_f represents a C_1–C_{20} bifunctional perfluoro-containing group which can have one or more ether bonds, which comprises reacting an iodine-containing ether having the formula:

$$XR_fCF_2OCF_2CF_2I \qquad (II)$$

wherein X and R_f are as defined above, in the presence of a particulate, metallic catalytic component selected from the group consisting of Zn-Cu, Zn-Cd, Zn-Pd, Zn-Hg;

wherein the iodine-containing ether (II) is reacted with said catalytic component in an inert polar aprotic organic solvent selected from the group consisting of benzonitrile, α-naphthonitrile, β-naphthonitrile, diphenyl ether, and mixtures thereof.

4,340,751

METHOD OF OPTICAL RESOLUTION OF (±)-2-AMINO-1-BUTANOL AND/OR (±)-MANDELIC ACID

Hiroyuki Nohira, 51-5 Ohkubo Ryoke, Urawa, Saitama, Japan; Hiroshi Fujii, Tokyo, Japan; Masami Yajima, and Rieko Fujimura, both of Saitama, Japan, assignors to Hiroyuki Nohira, Urawa, Japan

Filed Mar. 5, 1981, Ser. No. 240,789

Claims priority, application Japan, Mar. 5, 1980, 55/26720

Int. Cl.³ C07B *19/00*; C07C *89/04*

U.S. Cl. 562—401 **7 Claims**

1. A method of optical resolution of at least one of (±)-2-amino-1-butanol (AB) and (±)-mandelic acid (MA), which method comprises the steps of:

(i) crystallizing out, from a solution containing (±)AB and (±)MA, one of the pair of (+)AB-(+)MA salt and (−)AB-(−)MA salt, both of which are contained in said solution and which are enantiomeric salts;

(ii) separating the crystallized salt from the liquid;

(iii) decomposing the enantiomeric salt into optically active AB and MA; and

(iv) recovering the optically active substances.

4,340,752

PROCESS FOR THE PURIFICATION OF TEREPHTHALIC ACID

Ferdinand List, Marl, and Friedrich-August Orlowski, Haltern, both of Fed. Rep. of Germany, assignors to Chemische Werke Hüls AG, Marl, Fed. Rep. of Germany

Filed Mar. 21, 1978, Ser. No. 888,612

Claims priority, application Fed. Rep. of Germany, Apr. 4, 1977, 2714985

Int. Cl.³ C07C *51/42*

U.S. Cl. 562—485 **13 Claims**

1. Process for the purification of crude terephthalic acid having about 0.5 to 5 percent by weight of terephthalaldehydic acid therein comprising:

(a) introducing and circulating a dispersion of particles of said terephthalic acid in an acetic acid dispersant continuously through a cycle comprising a comminuting pump, a heater and a cooler, said cooler functioning as a crystallizer;

(b) adding fresh dispersion continuously to said cycle while simultaneously removing a corresponding amount of treated dispersion from said cycle;

(c) subjecting said circulating dispersion, prior to entering the heater to a particle comminution of said particles to about 50–90% of their diameters and exposing said circulating dispersion upstream of or in the heater to an oxygen-containing gas; and

(d) recovering terephthalic acid product from said treated dispersion, said product having about 0.01 to 0.07 percent by weight of terephthalaldehydic acid therein,

wherein the average diameter of said particles introduced in step (a) is about 10 to 150 microns and said comminuted particles of step (c) is about 5 to 10 microns.

4,340,753

METHOD FOR MAKING KETO ACIDS AND DIONE CYCLICS OBTAINED THEREFROM

James A. Cella, Clifton Park, N.Y., assignor to General Electric Company, Schenectady, N.Y.

Filed Sep. 2, 1980, Ser. No. 182,999

Int. Cl.³ C07C *51/285*

U.S. Cl. 562—528 **3 Claims**

1. In the method for making a keto-acid from α,β-unsaturated cyclic ketone by cleavage of the α,β-unsaturated ketone utilizing ozonolysis, whereby a hazardous build-up of the resulting ozonide formed in the reaction mixture, the improvement which comprises,

(1) effecting the ozonolysis of the α,β-unsaturated cyclic ketone in an aqueous organic solvent two phase mixture in the presence of an alkali metal hydroperoxide and a phase transfer catalyst, whereby the resulting keto acid is extracted to the aqueous phase as it is formed from decomposition of its ozonide produced in the organic phase,

(2) acidifying the aqueous phase containing the keto acid alkali metal salt resulting in the precipitation of the keto acid and

(3) recovering the resulting keto acid from the mixture of (2).

4,340,754

PROCESS FOR MAKING CHLOROCITRIC ACID

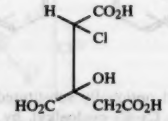
Robert W. Guthrie, Saddle Brook; Richard W. Kierstead, North Caldwell; Francis A. Mennona, Nutley, and Ann C. Sullivan, Cedar Grove, all of N.J., assignors to Hoffmann-La Roche Inc., Nutley, N.J.

Division of Ser. No. 973,504, Dec. 26, 1978, Pat. No. 4,312,885. This application Sep. 21, 1981, Ser. No. 304,282

Int. Cl.³ C07C *59/265, 59/125*

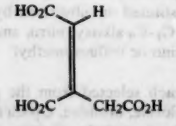
U.S. Cl. 562—584 **8 Claims**

1. A process for the preparation of (±)-erythro-chlorocitric acid of the formula

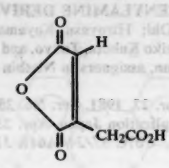


which comprises the steps of

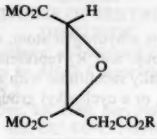
(a) contacting cis-aconitic acid of the formula



or the anhydride thereof, cis-aconitic anhydride, of the formula



with hydrogen peroxide in the presence of an alkali metal tungstate in an aqueous solvent containing about 2.5 molar equivalents of an alkali metal hydroxide to form a salt of (±)-erythro-epoxyaconitic acid of the formula



wherein m is an alkali metal and R is hydrogen or M; and

(b) contacting the salt of (±)-erythro-epoxyaconitic acid with an alkali metal chloride or an alkaline earth metal chloride in an aqueous solvent in the presence of about 3.5 molar equivalents of hydrochloric acid at a reaction temperature of about 50° C. to 80° C.

4,340,755

BIGUANIDE DIPERCHLORATE AND PROCESS FOR PREPARATION THEREOF

Gail W. Lawrence, and Horst G. Adolph, both of Silver Spring, Md., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Oct. 10, 1980, Ser. No. 195,991
Int. Cl.³ C07C *129/16*
U.S. Cl. 564—233 **2 Claims**

1. Biguanide diperchlorate.

2. A process for synthesizing biguanide diperchlorate comprising:

(1) slowly combining an alcoholic solution of perchloric acid, $HClO_4$, with an alcoholic solution of biguanide while the temperature of the resulting mixture is maintained at a temperature from 0° to less than 20°, wherein two equivalents of perchloric acid are used for each equivalent of biguanide, and

(2) isolating the product biguanide perchlorate.

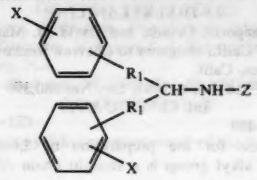
4,340,756

POLYAMINE COMPOUNDS AS ANTIBACTERIAL AGENTS

Richard A. Dybas, Somerville; Nathaniel Grier, Englewood, and Bruce E. Witzel, Rahway, all of N.J., assignors to Merck & Co., Inc., Rahway, N.J.

Filed Feb. 4, 1981, Ser. No. 231,193
Int. Cl.³ C07C *87/38*
U.S. Cl. 564—367 **14 Claims**

1. A compound of the formula:



where

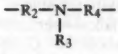
X is H, halo, loweralkyl (1 to 6 carbon atoms) and where at least one X is halo;

each R_1 is alike or different and is C_1 to C_4 alkylene;

Z is

where

Y is



or Y is R_2 and

R_2 is 2-hydroxy-1,3-trimethylene, or R_1 as previously defined;

R_3 is hydrogen, C_1 to C_4 alkyl, C_2 to C_4 aminoalkyl, C_1 to C_4 hydroxyalkyl, or C_2 to C_4 dihydroxyalkyl;

R_4 is 2-hydroxy-1,3-trimethylene, or R_1 as previously defined;

R_5 is hydrogen, aminoethyl, aminopropyl, C_1 to C_4 hydroxyalkyl, or C_2 to C_4 dihydroxyalkyl; and

R_6 is hydrogen, C_1 to C_4 hydroxyalkyl or C_2 to C_4 dihydroxyalkyl.

4,340,757

PROCESS FOR THE PREPARATION OF 2,6-DIALKYLANILINE FROM BROMINATED DIALKYL T-BUTYLBENZENE

Shigeto Suzuki, San Francisco, Calif., assignor to Chevron Research Company, San Francisco, Calif.

Filed Jul. 6, 1981, Ser. No. 280,440
Int. Cl.³ C07C *85/04*
U.S. Cl. 564—407 **15 Claims**

1. A process for the preparation of 2,6-dialkylaniline wherein each alkyl group is a straight chain of 1–4 carbon atoms which comprises:

(a) contacting 1,3-dialkyl-5-tertiary-butylbenzene wherein each alkyl group is a straight chain of 1–4 carbon atoms with molecular bromine at a temperature of from about −10° C. to about 80° C. to form 2-bromo-1,3-dialkyl-5-tertiary-butylbenzene;

(b) contacting the 2-bromo-1,3-dialkyl-5-tertiary-butylbenzene with 1,3-dialkylbenzene wherein each alkyl group is a straight chain of 1–4 carbon atoms in the presence of hydrogen fluoride at a temperature of from about −10° C. to about 80° C. and a pressure of from about 5 psig to about 300 psig to form 2-bromo-1,3-dialkylbenzene and 1,3-dialkyl-5-tertiary-butylbenzene;

(c) contacting the 2-bromo-1,3-dialkylbenzene and 1,3-dialkyl-5-tertiary-butylbenzene formed in (b) with ammonia in the presence of a catalytic amount of cuprous halide at a temperature of from about 150° C. to about 300° C. to thereby obtain a reaction mixture comprising 2,6-dialkylaniline and 1,3-dialkyl-5-tertiary-butylbenzene; and

(d) separating 2,6-dialkylaniline from the reaction mixture.

4,340,758

NITRATION PROCESS FOR THE PREPARATION OF 2,6-DIALKYLANILINE

Seymour J. Lapporte, Orinda, and David M. Marquis, Lafayette, both of Calif., assignors to Chevron Research Company, San Francisco, Calif.

Filed Jul. 6, 1981, Ser. No. 280,399
Int. Cl.³ C07C *85/11*
U.S. Cl. 564—409 17 Claims

1. A process for the preparation of 2,6-dialkylaniline wherein each alkyl group is a straight chain of 1–4 carbon atoms which comprises:

(a) contacting 1,3-dialkylbenzene wherein each alkyl group is a straight chain of 1–4 carbon atoms with isobutene in the presence of a hydrogen fluoride catalyst at a temperature of from about −50° C. to about 100° C. and a pressure of from about 0 psig to about 150 psig to form 1,3-dialkyl-5-tertiary-butylbenzene;

(b) contacting the 1,3-dialkyl-5-tertiary-butylbenzene with nitric acid in the presence of a soluble mercuric salt catalyst at a temperature of from about 0° C. to about 100° C. to form 2-nitro-1,3-dialkyl-5-tertiary-butylbenzene;

(c) contacting the 2-nitro-1,3-dialkyl-5-tertiary-butylbenzene with hydrogen in the presence of a hydrogenation catalyst at a temperature of from about 0° C. to about 200° C. and a pressure of from about 0 psig to about 2000 psig to form 2,6-dialkyl-4-tertiary-butylaniline;

(d) heating the 2,6-dialkyl-4-tertiary-butylaniline at a temperature of from about 50° C. to about 500° C. in the presence of a heterogeneous acidic catalyst to thereby obtain a reaction mixture comprising 2,6-dialkylaniline and isobutene; and

(e) separating 2,6-dialkylaniline from the reaction mixture.

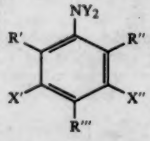
4,340,759

PROCESS FOR THE PREPARATION OF ANILINES SUBSTITUTED BY CHLORINE IN THE META-POSITION

Georges Cordier, Francheville, France, assignor to Rhone-Poulenc Agrochimie, Lyons, France

Filed Jan. 24, 1980, Ser. No. 115,137
Claims priority, application France, Feb. 15, 1979, 79 04482
Int. Cl.³ C07C *85/24*
U.S. Cl. 564—412 22 Claims

1. A process for the preparation of anilines substituted in the meta-position by chlorine, by the catalytic hydrogenation of chlorine-substituted nitrogen-containing benzene derivatives, in the liquid phase, in an acid medium, under the action of heat, under pressure and in the presence of noble metals from group VIII of the periodic classification, in which process the benzene derivatives have the formula:



(I)

in which Y represents the hydrogen atom or the oxygen atom, X′ and X″, which are identical or different from one another, each represent a chlorine atom or an optionally substituted alkyl, aryl, aralkyl, alkoxy or aralkoxy radical, or one of X′ and X″ is hydrogen, and R′, R″ and R‴, which are identical or different from one another, each represent a chlorine atom or an optionally substituted alkyl, aralkyl, alkoxy or aryloxy radical, at least one of these three representing the chlorine atom and at most two of R′, R″ or R‴ being hydrogen, and the reaction is carried out in the presence of heavy metal cations belonging to one of columns 1b to 5a of the periodic classification.

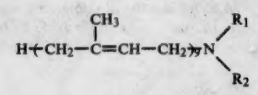
4,340,760

MONOPHENYLAMINE DERIVATIVES

Yoshiyuki Tahara, Ohi; Hiroyasu Koyama, Ageo; Yasuhiro Komatsu, Niiza; Reiko Kubota, Tokyo, and Toshihiro Takahashi, Ohi, all of Japan, assignors to Nisshin Flour Milling Co., Ltd., Japan

Filed Apr. 22, 1981, Ser. No. 256,578
Claims priority, application Japan, Apr. 23, 1980, 55-55109
Int. Cl.³ C07C *87/24*; A61K *31/13*
U.S. Cl. 564—462 5 Claims

1. Nonaprenylamine derivatives of the general formula



wherein R_1 represents a hydrogen atom, a nonaprenyl group or a lower alkyl group, and R_2 represents a lower alkyl or alkenyl group optionally substituted with at least one hydroxy or alkylamino group, or a cycloalkyl group, and acid addition salts thereof.

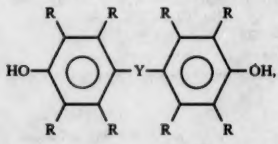
4,340,761

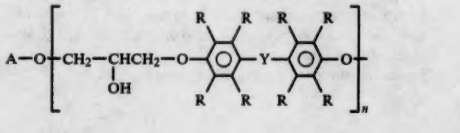
PREPARATION OF PHOSPHONIUM PHENOXIDE SALTS

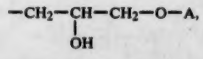
George A. Doorakian, Bedford, and Wanda S. Smith, Framingham, both of Mass., assignors to The Dow Chemical Company, Midland, Mich.

Filed Nov. 24, 1980, Ser. No. 209,640
Int. Cl.³ C07F *9/54*
U.S. Cl. 568—11 6 Claims

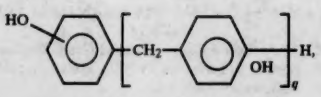
1. A process for preparing a tetrahydrocarbylphosphonium phenoxide salt comprising reacting by contacting a tetrahydrocarbylphosphonium halide salt in the presence of a phenol compound with an alkali metal or ammonium hydroxide in a liquid reaction medium, so as to effect conversion of the tetrahydrocarbylphosphonium halide to the corresponding tetrahydrocarbylphosphonium salt of the phenol compound or a phenol complex thereof, said phenol compound being represented by the formula





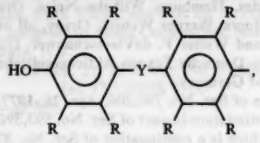


or



wherein each R independently is a hydrogen, halogen, hydrocarbyl, inertly-substituted hydrocarbyl or hydrocarbyloxy group, Y is a single covalent bond, —O—, —S—, —CO—,

—SO—, —SO_2—, or lower alkylene or alkylidene of from 1 to 6 carbon atoms, A is



n is an integer of from 1 to 20 and q is an integer of from 1 to 11.

4,340,762

GAS PHASE SYNTHESIS OF BIS(TRIFLUOROMETHYL) DISULFIDE

Louis G. Anello, Hamburg, and Richard F. Sweeney, Elma, both of N.Y., assignors to Allied Corporation, Morris Township, Morris County, N.J.

Filed Dec. 15, 1980, Ser. No. 216,034
Int. Cl.³ C07C *148/00*
U.S. Cl. 568—24 10 Claims

1. A method for preparing bis-(trifluoromethyl) disulfide, which consists essentially of contacting, in the gaseous phase, 2,2,4,4-tetrakis(trifluoromethyl)-1,3-dithietane with an activated carbon catalyst at elevated temperature, producing an effluent stream comprising bis(trifluoromethyl) disulfide and recovering bis(trifluoromethyl) disulfide from the effluent stream.

4,340,763

WINNING BITTER SUBSTANCES FROM HOPS

Michael T. Wuesthoff, Gales Ferry, Conn., assignor to Pfizer Inc., New York, N.Y.

Continuation-in-part of Ser. No. 155,686, Jun. 2, 1980, abandoned, which is a continuation-in-part of Ser. No. 110,414, Jan. 7, 1980, abandoned. This application Apr. 3, 1981, Ser. No. 250,794
Int. Cl.³ C07C *45/32*
U.S. Cl. 568—344 20 Claims

1. An improved process for the oxidation of lupulones to hulupones, using an oxygen-containing gas, in a substantially aqueous reaction medium rendered alkaline using a sodium-ion or potassium-ion containing alkalyzing agent, at a temperature in the range from about 25° to about 100° C., wherein the improvement comprises:

(i) carrying out the process under conditions under which substantially all of the hulupones are caused to precipitate from the reaction medium as a sodium or a potassium salt by using an initial concentration of lupulones in the range from 15 to 30 gm/100 ml of reaction medium; and

(ii) recovering the hulupones from the reaction medium as said sodium or potassium salt.

4,340,764

PROCESS FOR THE PREPARATION OF 1,4-DIALKYLBUT-2-ENE-1,4-DIONES

David J. Milner, Whitefield, England, assignor to Imperial Chemical Industries Limited, London, England

Filed Nov. 17, 1980, Ser. No. 207,613
Claims priority, application United Kingdom, Jan. 11, 1980, 8001011
Int. Cl.³ C07C *45/57*
U.S. Cl. 568—386 7 Claims

1. A process for the preparation of 1,4-dialkylbut-2-ene-1,4-diones which comprises oxidising a 2,5-dialkylfuran with an aqueous solution of a sodium, potassium or calcium hypochlorite at a pH from 7 to 10.

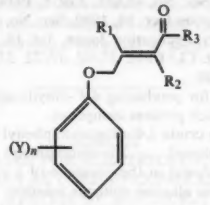
4,340,765

4-PHENOXY-2-BUTENE DERIVATIVES AS PLANT GROWTH REGULATORS

Gary M. Gray, Bethlehem, Pa.; George Schwartzkopf, Jr., Franklin Township, N.J., and J. T. Baker Chemical Co., 02, Phillipsburg, N.J.

Filed Aug. 14, 1980, Ser. No. 178,080
Int. Cl.³ C07C *59/48*
U.S. Cl. 71—123 26 Claims

1. A 4-phenoxy-2-butene compound of the formula



and phytopharmaceutically acceptable salts thereof, wherein R_1 and R_2 are selected from hydrogen and —CH_3 with the proviso that one of R_1 and R_2 is —CH_3 and the other is hydrogen; R_3 is hydrogen Y is selected from the group consisting of (lower)alkyl, halo, nitro, —CF_3, —S—(lower)alkyl, —O—(lower)alkyl, —O—acetyl, hydroxy, —NH—acetyl, amino, —NH(lower)alkyl, —N—di(lower)alkyl, and a fused benzene ring; and n is equal to 0, 1 or 2, wherein the term (lower)alkyl as used in the foregoing definitions includes straight or branched chain alkyl radicals containing from 1 to 6 carbon atoms.

4,340,766

DISHWASHING AGENTS AND CLEANING AGENTS CONTAINING OXYBUTYLATED HIGHER ALCOHOL/ETHYLENE OXIDE ADDUCTS AS LOW-FOAMING SURFACTANTS

Erhard Klahr, Ludwigshafen; Albert Hettche, Hessheim; Wolfgang Trieselt; Dieter Stoeckigt, both of Ludwigshafen, and Horst Trapp, Plankstadt, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Fed. Rep. of Germany

Filed Jan. 22, 1981, Ser. No. 227,280
Claims priority, application Fed. Rep. of Germany, Feb. 14, 1980, 3005515
Int. Cl.³ C07C *43/00, 43/04*
U.S. Cl. 568—625 4 Claims

1. A biodegradable and low-foaming cleaning and dishwashing agent containing non-ionic surfactants based upon ethoxylated and butoxylated alcohols, said non-ionic surfactants consisting of one or more adducts of a C_8- to C_{20}-alkanol and from 4 to 14 moles of ethylene oxide with 1,2-butylene oxide in a molar ratio of from 1:1.6 to 1:2.4.

4,340,767

ANTIOXIDANT PROCESS USING FORMALDEHYDE

George L. Mina, Orangeburg, S.C., assignor to Ethyl Corporation, Richmond, Va.

Filed May 14, 1981, Ser. No. 263,768
Int. Cl.³ C07C *39/12*
U.S. Cl. 568—720 16 Claims

1. In a process for the production of trialkyl-tris(3,5-dialkyl-4-hydroxybenzyl)benzene, said process comprising reacting, in the liquid phase, trialkylbenzene with 3,5-dialkyl-4-hydroxybenzyl alcohol in the presence of a catalyst selected from the group consisting of sulfuric acid and Friedel-Crafts catalysts, the improvement comprising the addition of formaldehyde and a carboxylic acid of formula RCOOH where R is H or C_1–C_{10} alkyl to the reaction mixture to thereby improve the yield of

trialkyl-tris(3,5-dialkyl-4-hydroxybenzyl)benzene, wherein the alkyl groups of said alcohol are C_1–C_8 and the alkyl groups of said trialkylbenzene are C_1–C_4.

4,340,768
PROCESS FOR PRODUCING 4,4'-DIHYDROXYBIPHENYL

Susumu Jinbo; Shoichi Kohno, and Masatoshi Onishi, all of Tokyo, Japan, assignors to Hodogaya Chemical Co., Ltd., Tokyo, Japan

Continuation of Ser. No. 45,652, Jun. 5, 1979, abandoned. This application Oct. 14, 1980, Ser. No. 196,756

Claims priority, application Japan, Jul. 18, 1978, 53-86707

Int. Cl.³ C07C *37/02, 37/72, 37/84*

U.S. Cl. 568—730 **9 Claims**

1. A process for producing 4,4'-dihydroxybiphenyl having high purity, which process comprises:

hydrolyzing a crude 4,4'-dibromobiphenyl which comprises 4-bromobiphenyl, 2-bromobiphenyl and 2,4'-dibromobiphenyl in the presence of a copper compound catalyst in an alkaline aqueous solution;

separating said copper compound catalyst from said alkali aqueous solution by filtration;

selectively extracting alkali metal phenylphenolates as by-products from the resulting alkaline aqueous solution with an alcohol or ketone which forms an organic phase;

separating said organic phase from said alkaline aqueous solution;

neutralizing or acidifying the alkaline aqueous solution with an acid;

extracting the biphenolic reaction product from said neutralized or acidified solution with an alcohol or ketone which forms an organic phase;

separating said organic phase; and

crystallyzing the 4,4'-dihydroxybiphenyl reaction product from said organic phase.

4,340,769
PROCESS FOR THE CONTINUOUS PRODUCTION OF LOWER ALIPHATIC ALCOHOLS

Günter Brandes, Hamburg; Wilhelm Neier, Orsoy; Johannes Wöllner, Moers; Werner Webers, Orsoy, all of Fed. Rep. of Germany, and Walter F. deVleesschauwer, Ghent, Belgium, assignors to Deutsche Texaco Aktiengesellschaft, Hamburg, Fed. Rep. of Germany

Continuation of Ser. No. 790,204, Apr. 25, 1977, abandoned, which is a continuation-in-part of Ser. No. 593,396, Jul. 7, 1975, abandoned, which is a continuation of Ser. No. 377,662, Jul. 9, 1973, abandoned. This application Sep. 25, 1978, Ser. No. 945,764

Claims priority, application Fed. Rep. of Germany, Jul. 11, 1972, 2233967

Int. Cl.³ C07C *29/04*

U.S. Cl. 568—899 **14 Claims**

1. In a process for preparing a saturated aliphatic alcohol having from 2 to 5 carbon atoms in a closed fixedbed reactor containing a sulfonated synthetic aryl cation exchange resin catalyst by reacting a water-olefin feed mixture in which said olefin component consists of at least 75 mole percent of a C_2 to C_5 aliphatic olefin and said water-olefin feed mixture consists of from about 1 to 40 moles of water per mole of said olefin, under hydration conditions at a temperature from about 120° to 180° C. and a pressure ranging from about 60 to 200 atmospheres gauge to recover an effluent reaction mixture rich in said saturated aliphatic alcohol, the improvement which comprises employing a sulfonated styrene-divinylbenzene copolymer cation exchange resin catalyst having a specific surface area measured in the dry state employing the BET method, of:

(a) less than 1 m^2/g, when the water-wet resin in dried, and

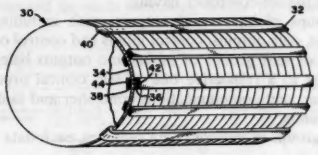
(b) greater than 1 m^2/g, when the water is displaced from the water-wet resin by a slightly polar or a non-polar organic solvent and the dewatered resin then dried.

4,340,770

ENHANCEMENT OF THE MAGNETIC PERMEABILITY IN GLASSY METAL SHIELDING

Jack E. Bridges, Park Ridge, and Marvin J. Frazier, Roselle, both of Ill., assignors to Allied Corporation, Morris Township, Morris County, N.J.

Filed Sep. 21, 1979, Ser. No. 67,600
Int. Cl.³ H05K 9/00
U.S. Cl. 174—35 MS 5 Claims



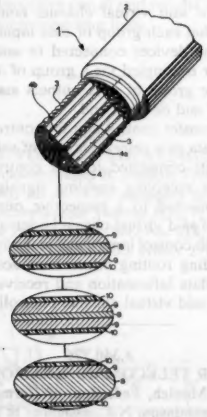
1. A method for increasing the magnetic permeability of a magnetic metallic glass shield in a time dependent magnetic field comprising biasing the magnetic metallic glass shield with an electromagnetic field having higher frequency components than the frequency of the major components of the time dependent magnetic field, said biasing field generating induction that is at least about equal to the remanent induction.

4,340,771

COMMUNICATIONS CABLE HAVING COMBINATION SHIELDING-ARMOR MEMBER

William M. Watts, Hickory, N.C., assignor to Siecor Corporation, Hickory, N.C.

Filed Mar. 16, 1981, Ser. No. 244,238
Int. Cl.³ H01B 11/06
U.S. Cl. 174—36 6 Claims



1. A cable comprising:

(a) a tubular covering of thermally conductive plastic having an inner peripheral surface that delimits a core-receiving cavity;

(b) a core made of two longitudinally extending groups of conductors insulated from one another, received in said core-receiving cavity and nested within said tubular covering, one of said groups adapted to transmit signals in one direction and the other group adapted to transmit signals in an opposite direction;

(c) a single metal shielding tape composed of a medial portion and two terminal portions, said medial portion being integrally joined to and in between the two terminal portions, radially extending between said groups of conductors to shield them one from the other, and each terminal portion extending circumferentially in opposite directions to each other around one of the groups until it reaches to and extends beyond the location where the other terminal portion merges with the medial portion; and,

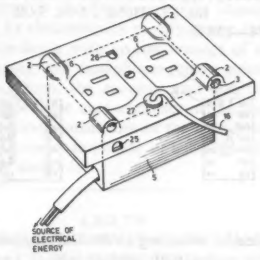
(d) all portions of said metal shielding tape being insulated from said conductors, corrugated and composed of first, second and third metal layers bonded one to the other, said first and third layers being of one metal and of substantially co-equal thickness bonded to the opposite surfaces of said second layer of a second metal, each of said metal layers having a thickness of about 3 mils.

4,340,772

COVER PLATES FOR ELECTRICAL UTILITY AND OTHER BOXES AS USED IN CONCEALED WIRING SYSTEM OF BUILDINGS

Biswa N. Bose, P.O. Box 116, Station-M, Toronto, Ontario, Canada (M6S 4T2)

Filed Jul. 24, 1980, Ser. No. 171,728
Claims priority, application Canada, Jul. 15, 1980, 355547
Int. Cl.³ H02G 3/18
U.S. Cl. 174—51 12 Claims



1. An electrical circuit comprising an electrical circuitry box of electrically conducting material; and an electrical unit mounted within the box and connected by electric cable means to a source of electrical energy, wherein a cover plate is mounted on the box, at least one opening is provided through the cover plate, and a grounding cable is reliably secured to the box, is disposed through said opening in the cover plate, and is connected to supply ground.

4,340,773

COAXIAL CABLES WITH FOAM DIELECTRIC

Aime J. Perreault, South Burlington, Vt., assignor to Champlain Cable Corporation, Wilmington, Del.

Filed Jun. 13, 1980, Ser. No. 159,322
Int. Cl.³ H01B 7/18
U.S. Cl. 174—107 3 Claims

1. A coaxial cable comprising:

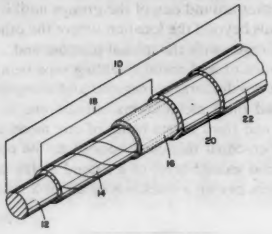
a. an inner conductor;

b. a dielectric system surrounding said inner conductor, said dielectric system comprising:

(i) a first layer of cellular polyparabanic acid providing a continuous skin directly contacting and surrounding said inner conductor along its length, and

(ii) a second layer consisting of a crosslinkable polymeric lacquer providing a continuous skin enclosing the first layer;

c. an outer conductor disposed circumferentially about the dielectric system;



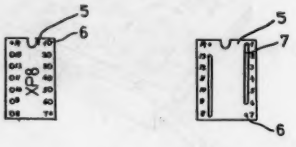
d. an outer protective layer surrounding circumferentially the outer conductor.

4,340,774

DEVICE FOR MOUNTING CIRCUIT COMPONENTS ON A CIRCUIT BOARD

Sören G. Nilsson, Uppakravägen 2, Balsta, Sweden (S-190 60), and Leif R. Carneborn, Saningsvägen 192, Järfälla, Sweden (S-175 45)

Filed Mar. 10, 1978, Ser. No. 885,255
Claims priority, application Sweden, Mar. 10, 1977, 77026904
Int. Cl.³ H05K *13/04, 3/30*
U.S. Cl. 174—138 G **5 Claims**



1. A device for mounting an electric component in the form of a holding socket with contact legs of known axial cross section and shape on a circuit board having apertures therein, the device comprising a plate of an electrically insulating material, said plate having a geometrical shape and a size corresponding to the shape and size of said socket in the plane of said circuit board; apertures in said plate corresponding in axial position to those in said circuit board for penetration by said contact legs, at least one of said apertures in said plate being of a size and shape which is to provide friction forces between at least one of said contact legs and the edge of said at least one of said apertures in said plate; and reference characters corresponding to said legs on said plate at the edge of corresponding, respective said apertures in said plate.

4,340,775

APPARATUS AND METHOD FOR CONTROLLING A MODULAR TELECOMMUNICATION SYSTEM

William Gesek, Mount Laurel, and James M. Major, Nebford, both of N.J., assignors to Siemens Corporation, Iselin, N.J.

Filed Oct. 29, 1980, Ser. No. 199,202
Int. Cl.³ H04Q *3/60;* **H04L** *15/00*
U.S. Cl. 178—3 **12 Claims**

1. In a modular telecommunication system for exchanging data between any pair of a multiplicity of data terminals, said telecommunication system including a plurality of switching blocks and a plurality of interconnecting lines for interconnecting said switching blocks, each of said switching blocks adapted to be connected to a respective group of data terminals and having:

(a) line terminators each adapted to be connected to a respective one of said data terminals;

(b) a central processing system for establishing communication links by means of channels assigned to a call during a call set-up phase upon request of one of said data terminals;

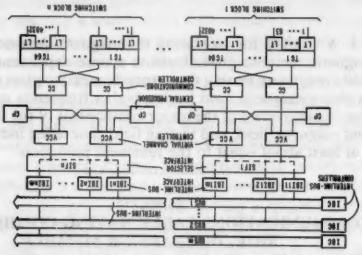
(c) a communications controller for independently controlling local data transfers from and to said line terminators across real channels during a call-connect phase; and

(d) an interface unit connected to said interconnecting lines for providing remote data transfers from and to a data terminal associated with a different, remote one of said switching blocks, the improvement comprising:

a virtual channel controller having:

(1) groups of inputs and outputs, each including data inputs, data outputs, control inputs and control outputs, each of said groups of inputs and outputs being connected to a respective one of said central processing system, said communications controller and said interface units;

(2) six groups of buffered data switches, each data switch



having a switch control input, a switch data input, and a switch data output, said groups of switches being arranged in pairs between said data inputs and said data outputs of said virtual channel controller in such a manner that each group of data inputs associated with one of the devices connected to said virtual channel controller is coupled via a group of data switches to a respective group of data outputs associated with the others of said devices; and

(3) a data transfer control unit for controlling of transmitting of data to a respective one of said devices having first inputs connected to said control inputs, second inputs for receiving enabling signals, having outputs each connected to a respective one of said control outputs of said virtual channel controller and to one of said switch control inputs, and including logic networks for decoding routing information accompanying each piece of data information and received at said control inputs of said virtual channel controller.

4,340,776

MODULAR TELECOMMUNICATION SYSTEM

Manfred Ganz, Munich, Fed. Rep. of Germany, and Enrique Gueldner, Cinnaminson, N.J., assignors to Siemens Corporation, Iselin, N.J.

Filed Oct. 29, 1980, Ser. No. 199,203
Int. Cl.³ H04Q *3/60;* **H04L** *15/00*
U.S. Cl. 178—3 **17 Claims**

1. In a modular telecommunication system for exchanging data between any pair of a multiplicity of data terminals, said telecommunication system including a plurality of switching blocks and a plurality of interconnecting lines for interconnecting any pair of said switching blocks, each of said switching blocks adapted to be connected to a respective group of data terminals, and including:

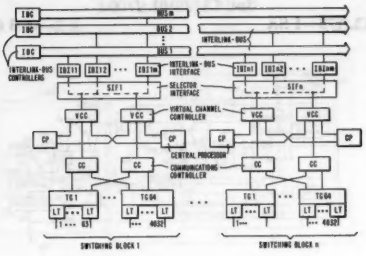
(a) line terminators each adapted to be connected to a respective one of said data terminals;

(b) a communications controller for controlling local data

exchange within the switching block between pairs of said line terminators across real channels;

(c) a central processing system coupled to said communications controller for setting up switching operations within said communications controller; and

(d) an interface unit connected to said interconnecting lines for providing remote data exchange between a locally associated data terminal and a data terminal associated with a different, remote one of said switching blocks, the improvement comprising: a virtual channel controller arranged in each switching block for controlling said



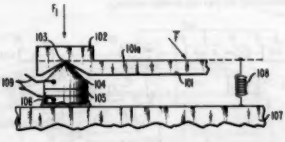
remote data exchange, and being connected to said central processing unit, said communications controller and said interface unit for switching information from either one of these devices connected thereto to the others in such a manner that said virtual channel controller, while being transparent for local data traffic across real channels, establishes additional data links by means of virtual channels for extending data exchange between any pair of a locally associated data terminal and a data terminal associated with a respective one of said remote switching blocks across said interconnecting lines.

4,340,777

DYNAMIC POSITION LOCATING SYSTEM

John DeCosta, Jackson; James B. Mallos, Freehold, and David B. Roe, Lincroft, all of N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Dec. 8, 1980, Ser. No. 214,174
Int. Cl.³ G08C *21/00*; H04N *1/00*
U.S. Cl. 178—18 **28 Claims**



1. A system for determining the location of a localized force applied to a surface, the system comprising a plurality of force sensing devices adapted to be associated with the surface, each sensing device translating forces at its location into proportional electrical signals,

CHARACTERIZED BY

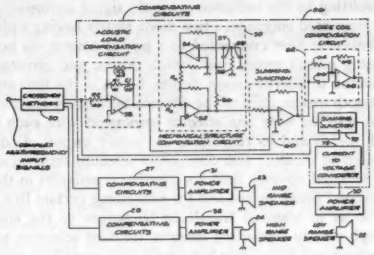
an alternating current coupling circuit **(508)** associated with each force sensing device **(501)**, the coupling circuit responding to the force proportional electrical signal output of the associated force sensing device and having a particular gain versus frequency characteristic curve **(301)**.

4,340,778

SPEAKER DISTORTION COMPENSATOR

Kenneth W. Cowans, Encino, and M. Owen Bennett, Agoura, both of Calif., assignors to Bennett Sound Corporation, Tarzana, Calif.

Filed Nov. 13, 1979, Ser. No. 93,839
Int. Cl.³ H04R *3/00*
U.S. Cl. 179—1 D **32 Claims**



1. The method of generating acoustic pressure waves corresponding to complex electrical audio signals while using a simple source transducer comprising the steps of:

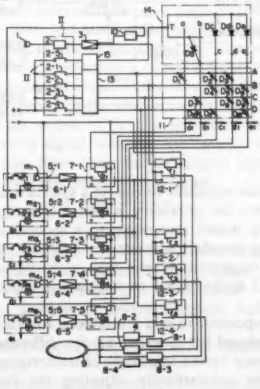
generating electrical signals from the audio signals that compensate the mechanical characteristics of the transducer to provide the force variations required for the transducer by electronically modifying the electrical signals in accordance with inverse analogs of at least the mass, damping and compliance characteristics of the transducer system, the acoustic load and the inherent electrical impedance characteristics of the transducer to alter the spurious emanations of the transducer to a frequency region or an amplitude, or both, at which they are substantially inaudible.

4,340,779

INTERPRETER INTERCOMMUNICATION AND PUBLIC ADDRESS SYSTEM

Hideaki Hashimoto, Tokyo; Mitsuo Abe, Yokohama, and Masaharu Morita, Kawasaki, all of Japan, assignors to Prince Hotels, Inc., Japan

Continuation of Ser. No. 885,350, Mar. 13, 1978. This application Jan. 16, 1980, Ser. No. 112,449
Claims priority, application Japan, May 24, 1977, 52-060218
Int. Cl.³ H04B *5/00*
U.S. Cl. 179—1 B **1 Claim**



1. In a communication system comprising a primary circuit

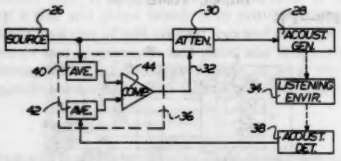
for transmitting an audio signal from a speaker microphone to an audience through transmitter means, first booth means, means connecting the speaker microphone signal to the first booth means where the audio signal of the speaker is translated into a medium language, second booth means, means connecting the translated medium language to the second booth means where the medium language is translated into final languages, a plurality of secondary circuits connected to the first and second booth means, each circuit having transmitter means for transmitting to the audience an audio signal exclusively used for a translated language, a first diode matrix having a plurality of transverse lines connected to a power source via holding-releasing circuit means and switch means, and obverse lines connected to interpretation display lamps in the first and second booth means, each of the obverse lines being connected to a first selector with one selector associated with each of the booth means and its respective secondary circuit, diode pins arranged to connect and disconnect selected transverse lines with selected obverse lines for alerting translators in the first and second booth means and for energizing certain first selectors so as to transmit translated languages to the audience through certain secondary circuits, the first selectors serving to connect and disconnect between booth amplifiers, one associated with each booth means, and second selectors, the second selectors serving to connect and disconnect between the first selectors and the transmitter means of the secondary circuits, the improvement comprising a second diode matrix having second transverse lines connected to the power source via a second holding-releasing circuit and second switch means, and second obverse lines each connected to one of the obverse lines of the first diode matrix, second diode pins arranged to connect and disconnect the second transverse lines with selected second obverse lines so that the interpretation display lamps in one of the first booth means and in each of the second booth means are energized together with the secondary circuits associated with these booth means whereby even when an additional language is spoken other than the specified languages translation of the additional language is accomplished without interrupting translation of the specified languages.

4,340,780

SELF-CORRECTING AUDIO EQUALIZER

Lars Odlen, Arlov, Sweden, assignor to Transcale AB, Västeros, Sweden

Filed Mar. 7, 1980, Ser. No. 128,245
Int. Cl.³ H04R 3/04
U.S. Cl. 179—1 D **17 Claims**



1. An audio equalizer for use in a system including an audio signal source for providing a first audio signal, and sound reproducing means responsive to a second audio signal for reproducing sounds in accordance therewith, said audio equalizer being responsive to said first audio signal for providing said second audio signal to said sound reproducing means, comprising:

means responsive to said reproduced sounds and to said first audio signal for determining the difference between the frequency versus amplitude characteristics thereof, and

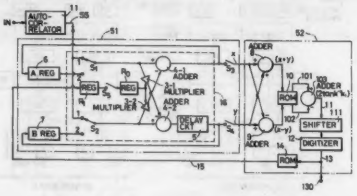
means for automatically adjusting the frequency versus amplitude characteristics of said first audio signal in accordance with said determined difference, with the resulting adjusted audio signal being provided to said sound reproducing means as said second audio signal.

4,340,781

SPEECH ANALYSING DEVICE

Akira Ichikawa, Musashino; Kazuo Nakata, Kodaira; Akira Nakajima, Tokyo; Yoshihiro Ohta, and Kazuhiro Umemura, both of Yokohama, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Apr. 30, 1980, Ser. No. 145,148
Claims priority, application Japan, May 14, 1979, 54-63045[U]
Int. Cl.³ G10L 1/00
U.S. Cl. 179—1 SA **3 Claims**



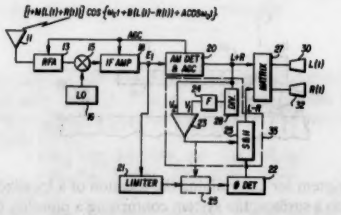
1. A speech analysing device comprising a correlator for obtaining an auto-correlation coefficient sequence of input speech signals, a computation portion for obtaining a partial auto-correlation coefficient sequence of said input speech signals, and a data circulation portion coupled to both said correlator and said computation portion to receive as its input said auto-correlation coefficient sequence and said partial auto-correlation coefficient sequence, wherein an output of said data circulation portion is coupled to an input of said computation portion so that output signals of said data circulation portion are employed as input signals to said computation portion for obtaining said partial auto-correlation sequence.

4,340,782

CIRCUIT FOR DEMODULATING AMPLITUDE AND ANGLE MODULATED BROADCAST SIGNALS

James R. Weigand, and Robert D. Streeter, both of Fort Wayne, Ind., assignors to Magnavox Consumer Electronics Co., Fort Wayne, Ind.

Filed Jun. 13, 1980, Ser. No. 159,357
Int. Cl.³ H04H 5/00
U.S. Cl. 179—1 GS **10 Claims**



5. A circuit for demodulating a signal having both amplitude and angle modulation components comprising:

an amplitude demodulation means for providing a signal proportional to the instantaneous amplitude of said signal;

an angle demodulator for providing an output signal proportional to said angle modulation components;

means for sampling and holding said angle demodulator output signal; and

threshold detector means connected to said means for sam-

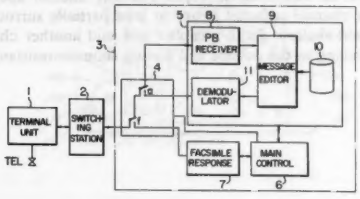
pling and said amplitude demodulator means, said threshold detector means providing a hold signal to said means for sampling and holding during periods when said modulated signal has an amplitude below a predetermined minimum level.

4,340,783

VOICE FREQUENCY RESPONSE SYSTEM

Tomonori Sugiyama, Fujisawa, and Akio Suehiro, Shimoda, both of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Jun. 13, 1980, Ser. No. 159,223
Claims priority, application Japan, Jun. 19, 1979, 54-76299
Int. Cl.³ H04M *11/00*
U.S. Cl. 179—2 A **17 Claims**



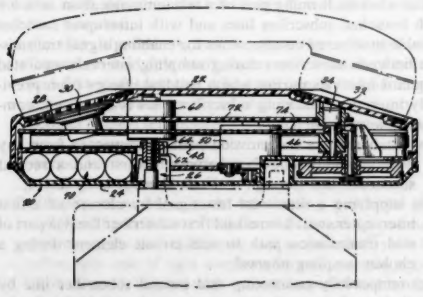
1. A voice frequency response system comprising
a terminal unit including both a functional part functioning as a telephone and a functional part functioning as a facsimile receiver;
a voice frequency response device; and
a telephone line connected between said terminal unit and said voice frequency response device;
said voice frequency response device comprising voice frequency response means for transmitting a required message to said telephone in response to a demand for voice frequency response service from said telephone in said terminal unit and facsimile response means for transmitting character-pattern information in at least a part of said message to said facsimile receiver in said terminal unit.

4,340,784

PORTABLE TELEPHONE ANSWERING DEVICE

Wayne F. McQueen, Tullahoma, Tenn.; Raymond R. Schansman, Huntsville, Ala.; William A. Hurd, Huntsville, Ala.; Joerg Fischer, Huntsville, Ala., and Billy W. Dunn, Arab, Ala., assignors to International Port-A-Call, Tullahoma, Tenn.

Filed Feb. 5, 1980, Ser. No. 119,007
Int. Cl.³ H04M *1/64*
U.S. Cl. 179—6.12 **9 Claims**



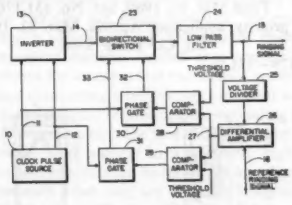
1. A portable telephone answering device comprising:
a housing adapted for removable placement over the cradle of a telephone and for removably receiving a telephone handset having a speaker and a microphone,
a speaker adapted to be adjacent the microphone of the handset speaker when said headset is received by said housing,
a microphone adapted to be adjacent the speaker of the handset when said handset is received by said housing,
means extending through said housing for engaging the telephone plungers and movable to release and depress said plungers,
means within said housing for detecting ringing of said telephone and causing said engaging means to release said plungers in response thereto,
a tape head within said housing for reading and recording on each channel of a multi-channel tape,
means within said housing for driving an endless loop of multi-channel tape past said head, and
logic means within said housing for causing said driving means to drive said tape and said head to read a message recorded on one channel of the loop following detection of ringing, for causing said head to record a message on another channel thereafter, and for causing said engaging means to depress said plungers following completion of said recording, and
counter means connected to said logic means within said housing for counting the number of other channels on which a message has been recorded so that said logic means causes said head to record on a track on which a message has not been recorded.

4,340,785

RINGING SIGNAL SUPPLY

Makary M. Awadalla, Ottawa, Canada, assignor to Northern Telecom Limited, Montreal, Canada

Filed Jan. 26, 1981, Ser. No. 228,095
Int. Cl.³ H04M *5/12*
U.S. Cl. 179—51 AA **9 Claims**



1. A ringing signal supply comprising:
switching means;
a low pass filter;
means for producing an error signal dependent upon differences between a representation of a signal at the output of the low pass filter and a reference ringing signal; and
means responsive to the error signal for controlling the switching means to selectively connect a source of alternating voltage to the input of the low pass filter during alternate half-cycles of the alternating voltage to change the signal at the output of the low pass filter and thereby reduce said error signal, whereby the signal at the output of the low pass filter is an output ringing signal corresponding to said reference ringing signal.

4,340,786

PIEZO-ELECTRIC FILM MANUFACTURE

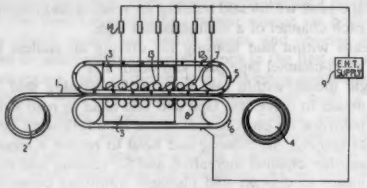
Norman W. Tester, 25 Sakins Croft, Harlow, Essex, England

Filed Jan. 28, 1980, Ser. No. 115,826
Claims priority, application United Kingdom, Apr. 3, 1979, 7911672
Int. Cl.³ H04R *17/00*; H01J *41/18, 41/22*; B29D *7/24*
U.S. Cl. 179—110 A **10 Claims**

2. A process for the production of piezo-electric PVDF film, which includes the steps of:
(a) stretching melt-extruded PVDF film, which stretching is

effected in a direction parallel to the extrusion direction, with a stretch ratio of the order of 4 to 1 and at a temperature of 100° to 140° C. to convert the sheet into the β crystalline form;

(b) clamping the film between conductive rubber layers to which is applied a polarizing voltage of about 10^8 volts per meter in the case of a 12 μm thick material, the film being held at a temperature of about 110° C. for 30 mins., whereafter the film is cooled to room temperature with the polarizing field still applied;



(c) printing or otherwise forming electrodes of an electrically-conductive elastomer onto the film in the required pattern; and

(d) stabilizing the piezo-electric properties by heating the film at about 90° C. for two hours, wherein the order in which steps (c) and (d) are performed may be reversed.

7. Diaphragms of piezo-electric film for use in electro-acoustic transducers, made by the process of claim 2.

4,340,787

ELECTROACOUSTIC TRANSDUCER

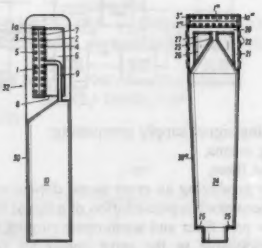
Rudolf Görike, Vienna, Austria, assignor to AKG Akustische u. Kino-Geräte Gesellschaft-mbH, Austria

Filed Mar. 17, 1980, Ser. No. 131,176

Claims priority, application Austria, Mar. 22, 1979, 2142/79

Int. Cl.³ H04R 9/08

U.S. Cl. 179—121 D **4 Claims**



1. An electroacoustic transducer of the electrodynamic type, comprising a flat magnetic system permeable to sound including a diaphragm, said diaphragm having a mass provided with conducting tracks, said mass of said diaphragm being substantially equal to the mass of a diaphragm of equal size intended for capacitive transducers, means defining a shallow depth chamber at the interior side of said diaphragm, and acoustic group delay time elements coupled to said diaphragm to give the transducer the form of a sound receiver with unidirectional characteristics, a perforated base plate on each side of said diaphragm, an acoustic frictional resistance connecting said shallow depth chamber with said diaphragm, a housing part defining a large cavity, a tube extending from said large cavity to one of said perforated base plates and said diaphragm, said tube and said large cavity being acoustically effective in the low frequency range and being directly connected to said base plate.

4. An electrodynamic transducer for use as a microphone, comprising a diaphragm housing, a diaphragm extending across said housing, said housing having acoustic delay time elements adjoining to and acoustically coupled to said diaphragm including a perforated base plate on each side of and spaced from said diaphragm, a plurality of magnets arranged at spaced locations along said base plate, chamber forming means defining a shallow depth air chamber on one side of said diaphragm overlying at least a portion of the associated one of said base plates, a housing part defining a large cavity connected through said shallow depth chamber to said diaphragm, a central tubular member connecting said large cavity with said shallow depth chamber, means defining another chamber adjacent and at least partially surrounding said central tubular member having acoustic resistance connecting said another chamber to said shallow depth chamber and an apertured tubular channel adjacent to and at least partially surrounding both said shallow depth chamber and said another chamber and opening to the outside and having acoustic resistances.

4,340,788

METHOD OF AND SYSTEM FOR MEASURING ELECTRICAL CHARACTERISTICS OF CIRCUIT ELEMENTS INCLUDED IN TIME-SHARING TELECOMMUNICATION NETWORK

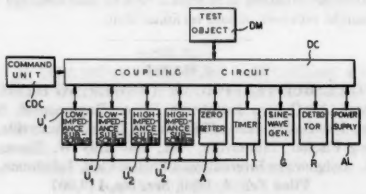
Anes Sbuelz, Milan, Italy, assignor to Italtel Societa Italiana Telecomunicazioni S.p.A., Milan, Italy

Filed Feb. 17, 1981, Ser. No. 234,805

Claims priority, application Italy, Feb. 18, 1980, 19974 A/80

Int. Cl.³ H04J 3/08; H04B 3/46

U.S. Cl. 179—175.3 R **12 Claims**



1. A method of measuring electrical characteristics of a circuit element forming part of a telecommunication network with branched subscriber lines and with interrupter switches closable in selected combinations for enabling signal transmission between subscribers during sampling intervals separated by guard intervals during which residual energy from previously intercommunicating subscriber lines is dissipated, comprising the steps of:

(a) establishing a transmission path disconnected from any other network circuitry between a first and a second subscriber line through a circuit element to be tested;

(b) supplying a sinusoidal test signal by closure of a first interrupter switch from said first subscriber line via part of said transmission path to said circuit element during a chosen sampling interval;

(c) temporarily connecting said second subscriber line by closure of a second interrupter switch to said circuit element via the remainder of said transmission path at a time separated by not more than a guard interval from said chosen sampling interval; and

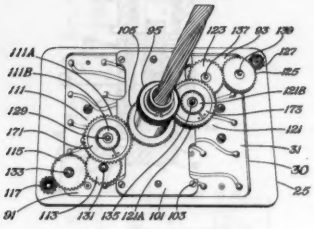
(d) detecting and measuring energy received in step (c) at said second subscriber line.

4,340,789

CHAFF-FLARE TEST ADAPTER SWITCHING SYSTEM

Robert A. Williams, 2721 White Settlement Rd., Fort Worth, Tex. 76107

Filed Apr. 16, 1979, Ser. No. 30,364
Int. Cl.³ H01H *19/58, 21/78*
U.S. Cl. 200—11 R 6 Claims



1. An electrical switch, comprising:

a plurality of first stationary contacts equal to n, wherein n is a number greater than ten,

said plurality of stationary contacts being arranged in sets and located in a housing,

said contacts of each set being arranged in a circle,

each contact of each set representing a decimal digit,

a movable contact for each set connected to a first rotatable shaft for sequentially engaging said stationary contacts of its set upon rotation of said first shaft,

a plurality of second stationary contacts located in said housing and arranged in a circular line,

each of said second stationary contacts representing a decimal digit weighted by a factor of ten,

a movable contact means connected to a second rotatable shaft for sequentially engaging said second stationary contacts upon rotation of said second shaft,

each movable contact of said sets being electrically connected to one of said second stationary contacts,

said first and second rotatable shafts being rotatable relative to each other,

a first knob means connected to said first shaft for rotating said first shaft,

a plurality of numbers each representing a decimal digit formed on said first knob means and located relative to said first shaft such that when any one of said numbers is aligned with first means of said housing, said movable contact of each set engages a stationary contact representing a corresponding number,

a second knob means connected to said second shaft for rotating said second shaft,

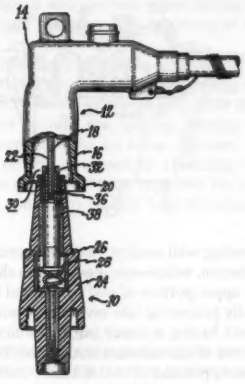
a plurality of numbers each representing a decimal digit weighted by a factor of ten formed on said second knob means and located relative to said second shaft such that when any one of said numbers formed on said second knob means is aligned with second means of said housing, said movable contact means connected to said second shaft engages one of said second stationary contacts representing a corresponding number and forms an electrical connection between said movable contact means and one of said stationary contacts of said sets of stationary contacts.

4,340,790

ELECTRICAL SWITCH WITH MELAMINE LOADED THERMOPLASTIC ABLATIVE MATERIAL

Vincent J. Boliver, Pittsfield, Mass., assignor to General Electric Company, Philadelphia, Pa.

Continuation of Ser. No. 716,130, Aug. 20, 1976. This application Aug. 8, 1978, Ser. No. 932,060
Int. Cl.³ H01H *33/70, 9/30*
U.S. Cl. 200—144 C 3 Claims



1. A separable electrical connector assembly including mating switch and connector modules respectively having mating bore and rod contact members, each of the modules including an insulating housing with portions thereof having closely matched configurations so as to form a substantially insulating seal when the modules are mated together, the rod contact member having a rod-shaped arc follower of thermoplastic ablative composition material located at a contact engaging end thereof, means for securing said rod-shaped arc follower to said rod contact comprising a reinforcing pin about which said arc follower is molded, the reinforcing pin extending from said rod contact to a location near the free end of said arc follower, said arc follower being subject to a relatively high bending moment when said modules are being mated together or being separated from each other, said arc follower being sufficiently strong enough mechanically to withstand said bending moment, wherein said ablative composition material consists essentially of acetal resin loaded with finely divided melamine in an amount between one fourth and substantially less than one-half of said composition by weight, said switch module including a snuffer tube adjacent said bore contact member, said snuffer tube including an ablative snuffer liner of the same material as said arc follower but having a relatively higher loading of melamine.

4,340,791

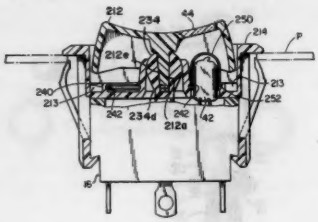
ENVIRONMENTALLY SEALED ROCKER SWITCH

Richard W. Sorenson, Avon, Conn., assignor to Carlingswitch, Inc., West Hartford, Conn.

Continuation-in-part of Ser. No. 39,859, May 14, 1979, Pat. No. 4,242,551, which is a continuation-in-part of Ser. No. 945,520, Sep. 25, 1978, abandoned. This application Oct. 28, 1980, Ser. No. 201,621
The portion of the term of this patent subsequent to Dec. 30, 1997, has been disclaimed.
Int. Cl.³ H01H *9/04, 9/16*
U.S. Cl. 200—302 10 Claims

1. An electric switch housing for protecting the fixed contacts and movable contact bridging member from environmental conditions external to the switch, said housing comprising an upwardly open dielectric base for said contacts and bridging member, a dielectric cover bracket secured to said

base for isolating the contents of the base from the environment, said cover bracket having a recessed portion and a generally cylindrical upstanding boss defined centrally of said recessed portion, an actuator snugly received in a central opening of said boss and having a shoulder portion engaging an inturned lip on said boss, an inner end of the actuator adapted to engage the movable contact bridging member and an upper end of said actuator, said cover bracket having a raised peripherally extending wall portion, said wall portion having aligned openings therein, which openings are also aligned with a diameter of the upper portion of said cylindrical boss, and a rocker with laterally projecting tabs pivotally received in said aligned openings and having a center portion which cooperates with said upper end of said actuator so that they move together, and wherein the upper end of said actuator more particularly defines an upwardly open hole, and said rocker center portion defines a depending spike for entry in said actuator hole.

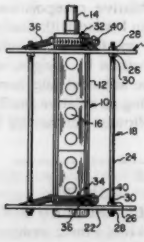


4,340,792

PENDANT CONTROL PROTECTOR

Frank P. Cava, 240 Beaver St., Beaver, Pa. 15009

Filed Nov. 10, 1980, Ser. No. 205,527
Int. Cl.[3] H01H *9/04*
U.S. Cl. 200—304 6 Claims



1. A protector for a pendant control having a housing and comprising a protective cage, said cage formed by:

A. a pair of ring-shaped bumpers;

B. a plurality of connecting rods joined to and disposed about said bumpers to space them from one another;

C. a pair of adjustable clamps, each clamp being attached to a bumper by at least two shock absorbing members;

D. each member being disposed equidistant from one another about the bumpers and clamps; and

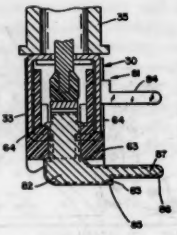
E. said clamps and shock absorbing members supporting said bumpers on said pendant control housing to maintain the cage substantially concentric with said housing.

4,340,793

SUB-MINIATURE, TWO POSITION DOUBLE POLE SWITCH

Francis D. Kirchoff, Waban, Mass., assignor to Alco Electronic Products, Inc., North Andover, Mass.

Division of Ser. No. 782,992, Mar. 30, 1977, Pat. No. 4,110,574.
This application May 19, 1978, Ser. No. 907,715
Int. Cl.[3] H01H *1/02, 1/06*
U.S. Cl. 200—268 2 Claims



1. A sub-miniature, two position switch of the type having a case with a plurality of projecting conductive terminals, at least one rocker and a single handle with a spring pressed plunger and insulated tip for actuating said rockers characterized by:

said terminals being each pre-formed of flat, thin, planar, plate-like metal, of generally rectangular cross section, in right angular configuration, in the same plane, with an inner portion in the path of one of said rockers within said case, and with an integral outer portion, at right angles to said inner portion, outside said case;

and each said pre-formed, flat, planar, right angular terminal having at least one coating layer superposed thereon in intimate contact therewith;

said coating layer being free of any cracks.

2. In combination with a sub-miniature switch of the type having a see saw, or rocker, for closing a circuit therewithin and a spring pressed handle for actuating said rocker;

a plurality of pre-formed, right angularly configured, switch terminals, each of rectangular cross section of predetermined dimensions,

said pre-formed right angularly configured switch terminals each having a flat, planar inner portion within said case cooperable with said rocker to open and close a circuit and each having a flat, planar outer portion, outside said case, normal to said inner portion in the same plane, with a shoulder forming a stop and an integral terminal blade of reduced rectangular cross section;

said flat, planar, inner and outer portions of each said terminal being each coated with a nickel barrier layer and a gold plate layer.

4,340,794

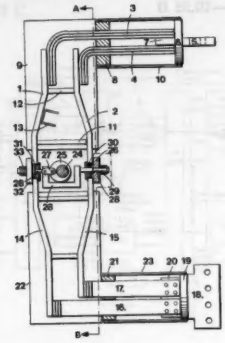
SEMI-CONDUCTOR FOR HIGH CONTINUOUS CURRENTS

Bernard V. Maupas, Corserey, Corserey, Canton de Fribourg, Switzerland (CH-1751)

PCT No. PCT/CH79/00033, § 371 Date Nov. 1, 1979, § 102(e) Date Nov. 1, 1979, PCT Pub. No. WO79/00670, PCT Pub. Date Sep. 6, 1979
PCT Filed Feb. 28, 1979, Ser. No. 169,119
Claims priority, application Switzerland, Mar. 1, 1978, 2175/78
Int. Cl.[3] H01H *9/52*
U.S. Cl. 200—289 7 Claims

1. Unipolar short-circuiter for electrolysis cells at high direct current at low voltage, characterized by that fact that it includes two sets of movable contact pieces working with two groups of two stationary contact plates arranged in parallel a

driving mechanism for the movable contact., said movable contact pieces, stationary contact plates and driving mechanism being symmetrical in relation to the axis of a single control shaft for the movable contacts, so that said shaft is essentially submitted solely to torsion efforts, each of the groups of two stationary contact plates being connected through a deformable conductor to a current taking plate in order to form a conductor assembly which is surrounded by an enclosure in



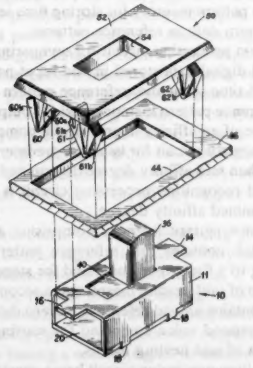
which a cooling fluid circulates, the only parts of said assembly which are located outside the enclosure being the stationary contact plates cooperating with the movable contacts on the one hand and the contact area of the current taking plate cooperating with the connection area of an electrolysis cell on the other hand, said enclosure including a flexible part to permit a movement of the plate for taking current in relation to the stationary contact plates to compensate for the imprecisions of construction of the cells and the short-circuiter.

4,340,795

PANEL MOUNT ADAPTER FOR SWITCHES

Ronald H. Arthur, Lauderhill, Fla., assignor to AMF Incorporated, White Plains, N.Y.

Filed Jul. 29, 1980, Ser. No. 173,318
Int. Cl.³ H01H *9/00*
U.S. Cl. 200—295 **3 Claims**



1. An adapter for mounting an electrical component in an aperture in a mounting panel or the like, said component having a tab that extends outwardly from its housing, said adapter comprising:

a frame member having an outer periphery that extends, at least partially, beyond the edge of an aperture into which the component is to be mounted,

an opening extending transversely through the interior portion of the frame member and adapted to register with the aperture in said mounting panel,

at least two spaced apart legs extending downwardly from a bottom surface of said frame and adapted to be inserted through said aperture in the mounting panel when the adapter is mounted on the panel,

each leg having two resilient arms, one extending outwardly toward the edge of said aperture when the leg is inserted therethrough and the other arm extending in a different direction,

said other arms of the two legs being spaced apart a distance to releasably clamp with opposing resilient bias said tab on the component housing therebetween when the component is inserted through the opening, thereby releasably holding the component to the frame member,

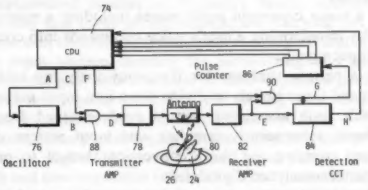
said one arms on the downwardly extending legs being constructed to engage the edge region of the aperture in the mounting panel to releasably hold the adapter in said aperture.

4,340,796

WIRELESS TEMPERATURE-SENSING SYSTEM INCLUSIVE OF THERMALLY-RESPONSIVE OSCILLATOR

Masumi Yamaguchi, Ikoma; Kenji Kawabata, Nara, and Yoshimi Kumagai, Tenri, all of Japan, assignors to Sharp Kabushiki Kaisha, Osaka, Japan

Filed Aug. 29, 1979, Ser. No. 70,730
Claims priority, application Japan, Aug. 31, 1978, 53-107989; Sep. 12, 1978, 53-112717
Int. Cl.³ H05B *6/68*; G01K *7/32*
U.S. Cl. 219—10.55 B **18 Claims**



1. Wireless temperature sensing means for monitoring a temperature within a cooking apparatus, comprising:

transmitter means for propagating electromagnetic waves within said cooking apparatus over a range of selectively variable frequencies, the said frequencies varying by predetermined increments upon the respective lapses of corresponding predetermined increments of time over which given discrete frequencies exist;

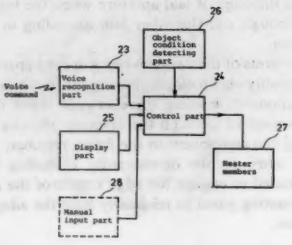
resonant circuit means having a resonant frequency variable linearly in accordance with a monitored temperature value in said cooking apparatus and being devoid of a source of power for selectively responding to a particular frequency of said given discrete frequencies of said propagated electromagnetic waves which is representative of said monitored temperature value and repropagating a response wave having that particular frequency over a subsequent interval of time; and

detection means, responsive to said response wave over a sampling interval coincident with said subsequent interval of time for determining said particular frequency as a measure of monitored temperature value.

4,340,797
VOICE ACTUATED HEATING APPARATUS

Teruhisa Takano, Osaka, and Shigeki Ueda, Nara, both of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Kadoma, Japan

Filed Dec. 18, 1980, Ser. No. 217,651
Claims priority, application Japan, Dec. 21, 1979, 54-167404
Int. Cl.[3] H05B 6/68
U.S. Cl. 219—10.55 B 8 Claims



1. A heating apparatus comprising:

(a) an enclosure case having therein a heating chamber in which an object to be heated is to be placed, the enclosure case having a door at an opening of said heating chamber,

(b) a heating means for radiating heating energy into said heating chamber,

(c) detecting means for measuring physical data of heating conditions of said object,

(d) a speech recognition and control circuit, and

(e) a display means for displaying operation states of said heating apparatus,

wherein said speech recognition and control circuit comprises:

(f) a voice command input means including a microphone for transforming a user's voice commands into command input signals,

(g) a pattern analyzer for frequency-analyzing said command input signals to divide them into input pattern signals each associated with a predetermined frequency band, subsequently sampling said input pattern signals, and carrying out A/D conversion thereof to produce pattern-analyzed digital data,

(h) an input pattern memory for memorizing said pattern-analyzed digital data in a form of time sequential patterns,

(i) a reference pattern memory for storing time sequential reference pattern data as reference patterns,

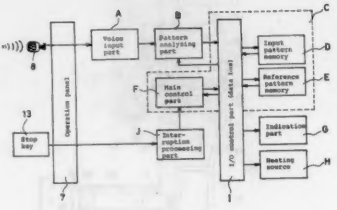
(j) a recognition processing circuit for comparing said pattern-analyzed digital data stored in said input pattern memory with said time sequential reference pattern data stored in said reference pattern memory, and for generating a signal indicative of an affinity degree of the comparison, and for producing predetermined recognition codes corresponding to recognized voice commands, when said signal of said affinity degree for one respective voice command among said user's voice commands is more than a present signal level,

(k) a control circuit part including a program memory in which a plurality of heating sequences are preliminarily stored prior to the operation of said heating apparatus, and for selecting and presetting the selected one of said heating sequences based on said predetermined recognition codes, and for controlling operations of said heating means in a manner to heat said object according to said preset heating sequence, and wherein that said display means displays said selected heating sequence.

4,340,798
VOICE-CONTROLLED SAFETY ARRANGEMENT HEATING APPARATUS

Shigeki Ueda, Kitakatsuragi, and Teruhisa Takano, Osaka, both of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Kadoma, Japan

Filed Dec. 18, 1980, Ser. No. 217,653
Claims priority, application Japan, Dec. 21, 1979, 54/167406
Int. Cl.[3] H05B 6/68
U.S. Cl. 219—10.55 B 12 Claims



1. A heating apparatus comprising:

an enclosure case having therein a heating chamber adapted to receive an object to be heated, said enclosure case having a door at an opening thereof,

a heating means for generating heating energy in said heating chamber,

a voice command input means for transforming a user's voice command into a command input signal,

a pattern analyzer for frequency-analyzing said command input signal by deriving therefrom input pattern signals for a predetermined number of frequency bands, subsequently sampling said input pattern signals, and carrying out A/D conversion thereof thereby producing pattern-analyzed digital data,

an input pattern memory for storing said pattern-analyzed digital data in a form of time sequential patterns,

a reference pattern memory for storing time sequential reference pattern data as reference patterns,

a recognition processing circuit for comparing said pattern-analyzed digital data stored in said input pattern memory with said time sequential reference pattern data stored in said reference pattern memory, and for outputting a signal indicative of an affinity degree of the comparison, and

an output control circuit for issuing a predetermined control signal when said affinity degree determined by said signal from said recognition processing circuit is higher than a predetermined affinity degree,

said reference pattern memory comprising a first address part which contains first reference pattern data corresponding to a first voice command for stopping a heating operation of said heating means, and a second address part which contains second reference pattern data corresponding to a second voice command for starting said heating operation of said heating means,

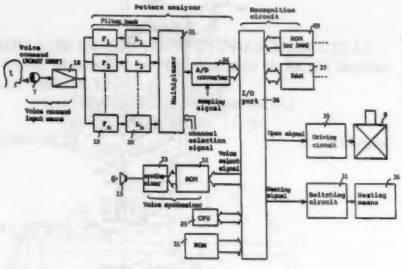
said recognition processing circuit being constituted to carry out the comparison of said pattern-analyzed digital data with said first reference pattern data corresponding to said first voice command, in advance of the comparison of said pattern-analyzed digital data with said second reference pattern data corresponding to said second voice command.

4,340,799

HEATING APPARATUS WITH VOICE ACTUATED DOOR OPENING MECHANISM

Shigeki Ueda, Nara; Teruhisa Takano, Osaka, and Ryuji Suzuki, Nara, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Kadoma, Japan

Filed Dec. 18, 1980, Ser. No. 217,684
Claims priority, application Japan, Dec. 21, 1979, 54-167405
Int. Cl.[3] H05B 6/68
U.S. Cl. 219—10.55 C 4 Claims



1. A heating apparatus comprising:

(a) an enclosure case having therein a heating chamber in which an object to be heated is to be placed,

(b) a heating means for generating a heating energy to be fed into said heating chamber,

(c) a door mounted at an opening of said heating chamber for opening and closing the heating chamber,

(d) a locking means for locking said door when the door is closed, and

(e) a releasing means for releasing a locking state of said locking means, to open said door,

(f) a voice command input means including a microphone for transforming a user's voice command into a command input signal,

(g) a pattern analyzer for analyzing said command input signal by (1) dividing it into input pattern signals, each input pattern signal being associated with a predetermined frequency band, (2) subsequently sampling said input pattern signals and (3) carrying out A/D conversion thereof to produce pattern-analyzed digital data,

(h) an input pattern memory for memorizing said pattern-analyzed digital data in a form of time sequential patterns,

(i) a reference pattern memory for storing time sequential reference pattern data as reference patterns,

(j) a recognition processing circuit for comparing said pattern-analyzed digital data stored in said input pattern memory with said time sequential reference pattern data stored in said reference pattern memory, and for providing a signal indicative of the affinity degree of the comparison, and

(k) an output control circuit for producing at least a predetermined control signal when said affinity degree is higher than a predetermined degree of affinity,

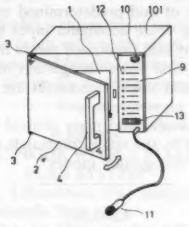
said reference pattern memory having an address part for storing reference pattern data corresponding to a voice command for opening said door, the output control circuit being for issuing a control signal to actuate said releasing means thereby releasing said locking means and opening said door, when an affinity degree determined by said signal from said recognition processing circuit after comparing the pattern-analyzed digital data stored in said input pattern memory with said reference pattern data corresponding to said voice command door opening said door, is higher than said predetermined degree of affinity.

4,340,800

HEATING APPARATUS HAVING VOICE COMMAND CONTROL OPERATIVE IN A CONVERSATIONAL PROCESSING MANNER

Shigeki Ueda, Nara, and Teruhisa Takano, Osaka, both of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Kadoma, Japan

Filed Dec. 18, 1980, Ser. No. 217,685
Claims priority, application Japan, Dec. 21, 1979, 54-167407
Int. Cl.[3] H05B 6/68
U.S. Cl. 219—10.55 B 4 Claims



1. A heating apparatus comprising:

(a) an enclosure case having therein a heating chamber adapted to receive an object to be heated, the enclosure case having a door at an opening of said heating chamber,

(b) a heating means for generating heating energy into said heating chamber, and

(c) speech recognition and control circuit means comprising a voice command input means including a microphone for transforming user's voice commands into command input signals, the speech recognition and control circuit further comprising:

(d) a pattern analyzer for frequency-analyzing said command input signals to divide them into input pattern signals for a predetermined number of frequency bands, subsequently sampling said input pattern signals, and carrying out A/D conversion thereof to produce pattern-analyzed digital data,

(e) an input pattern memory for memorizing said pattern-analyzed digital data in a form of time sequential patterns,

(f) a reference pattern memory for storing time sequential reference pattern data as reference patterns,

(g) a recognition processing circuit for comparing said pattern-analyzed digital data stored in said input pattern memory with said time sequential reference pattern data stored in said reference pattern memory, for issuing a signal indicative of an affinity degree of the comparison, and producing at least a predetermined control signal corresponding to recognized voice commands, when said signal of said affinity degree for one respective voice command among said user's voice commands is more than a preset signal level,

(h) a voice synthesizer which, based upon said predetermined control signal of said recognition processing circuit, synthesizes a voice output signal,

(i) a speaker for producing a sound upon receipt of said voice output signal,

(j) a voice synthesizer memory, in which voice pattern data are preliminarily stored prior to operation of said heating apparatus,

(k) a timer for counting a time period between an issuance of said voice output signal and a subsequent receipt of a second command input signal and

(l) a main control unit for controlling the abovementioned component parts in a manner to have sequential operations comprising a first voice recognition mode, a voice synthesizing mode, a second voice recognition mode and an enforcing mode in this order, wherein

in said first voice recognition mode, said main control unit makes said voice command input means receivable of any

voice commands, and shifts said sequential operation to the voice synthesizing mode upon issuance of said predetermined control signal,

in said voice synthesizing mode, said main control unit makes said voice synthesizer synthesize said voice output signal to ask said user tell a second voice command to said voice command input means, and immediately thereafter makes said sequential operation to said second voice recognition mode,

in said second voice recognition mode, said main control unit makes said voice command input means receivable of only a limited number of predetermined voice commands, makes said sequential operation to said heating means switching mode when one of said predetermined voice commands is received by said voice command input means within said time period set by said timer, and makes the apparatus again operates in said first voice recognition mode when one of said predetermined voice commands are received by said voice command input means, and

in said enforcing mode, said main control unit carrys out a program defined by the voice commands recognized in said first and second recognition modes.

4,340,801

CONTINUOUS HEATING APPARATUS FOR METAL CAPS

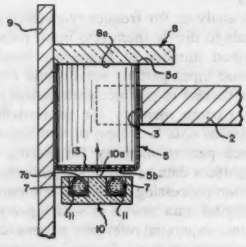
Kazuhisa Ishibashi, Yokohama, and Hidehiko Omi, Hiratsuka, both of Japan, assignors to Toyo Seikan Kaisha, Ltd., Tokyo, Japan

Continuation of Ser. No. 39,122, May 15, 1979, abandoned. This application Jan. 9, 1981, Ser. No. 223,822

Claims priority, application Japan, May 26, 1978, 53-62304; Jul. 19, 1978, 53-87079

Int. Cl.[3] H05B *6/10, 6/40*

U.S. Cl. 219—10.71 **5 Claims**



1. In a continuous heating apparatus for continuously heating non-magnetic metal caps so as to thermally adhere thermoplastic liners to the inner surface of the bottom of the caps, the improvement comprising in that said apparatus has a cap feed means for supplying caps with their bottoms positioned downwardly and their open ends positioned upwardly, at least one pair of high frequency electric conductors positioned beneath and facing the bottom of the metal caps to be heated and being spaced from each other by an interval less than the diameter of the bottom of a cap, a source of high frequency electric current connected to said conductors to cause a current flow in opposite directions in each said pair of conductors, a guide panel formed with a ceramic plate spaced from said conductors a distance slightly greater than the height of a cap to form therebetween part of an unobstructed space through which metal caps may move and where said guide panel is adapted to engage the open ends of said metal caps which are moved from the conductors towards said panel under the influence of the high frequency electric current, and a rotatable table having a plurality of semi-circular peripheral notches to engage the side wall of a metal cap to move the metal cap through the space relative to said conductors with the open end of the metal caps slipping along said guide panel.

4,340,802

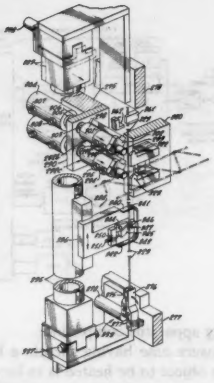
METHOD AND APPARATUS FOR WELDING

Richard F. Artzer, Riverside, Calif., assignor to Covington Brothers Technologies, Fullerton, Calif.

Continuation-in-part of Ser. No. 33,857, Apr. 27, 1979, abandoned, which is a continuation-in-part of Ser. No. 857,235, Dec. 5, 1977, Pat. No. 4,226,067. This application Sep. 17, 1979, Ser. No. 76,542

Int. Cl.[3] B23K *11/32, 11/10*

U.S. Cl. 219—56 **39 Claims**



1. Apparatus for fabricating a three-dimensional panel composed of a stack of wire trusses alternated with elongated filler elements to provide a composite structural panel composed of a three-dimensional wire lattice and a filler therefor, each said truss including mutually spaced, longitudinally extending runner wires interconnected by struts, said apparatus comprising

a support,

means for holding said trusses and filler elements on said support,

a plurality of extensible fluid motors mounted on said support,

a plurality of electrodes mounted on respective ones of said motors for motion toward said trusses along paths aligned with respective runner wires of said trusses,

means including a pneumatically driven wire pulling shuttle for positioning a cross wire transversely of said runner wires and transversely of said paths,

means for energizing said motors to advance said electrodes along said paths and press said cross wire and runner wires together with mutually predetermined pressures, and

means for flowing electric current between said electrodes and said wires.

4. The method of resistance welding a workpiece at a plurality of points comprising

mounting a plurality of fluid motors in predetermined relative positions,

mounting a plurality of weld electrodes to respective ones of said motors to be shifted thereby,

positioning a backup member behind said workpiece at each of said points,

positioning a plurality of mutually spaced first wires in a row between respective pairs of electrodes and backup members,

feeding a cross wire to one end of said row of first wires, said wires forming said workpiece,

pneumatically pulling said cross wire transversely of and adjacent to said row of first wires from said one end to the other of said row, holding said cross wire at said ends so as to place the cross wire under substantial tension,

moving said electrodes and backup members in unison from a first position in which the backup members clear said workpiece to allow the workpiece to be moved relative to

said backup members and electrodes, to a second position in which the backup members flank the workpiece to enable the electrodes to press the workpiece against the backup members,

applying fluid pressure to fluid motors to shift said electrodes into contact with said workpiece to press against said workpiece and press the workpiece against said backup members with a force directly related to pressure applied to said motors, and

flowing electric current between said electrodes and workpiece.

4,340,803

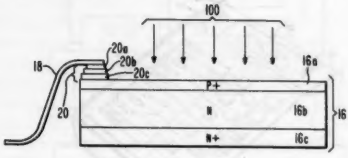
METHOD FOR INTERCONNECTING SOLAR CELLS

Peter J. Coyle, Maple Shade, N.J., assignor to RCA Corporation, New York, N.Y.

Filed Nov. 20, 1979, Ser. No. 96,142

Int. Cl.³ B23K *11/16, 11/32*

U.S. Cl. 219—56.22 **8 Claims**



1. A process for welding an interconnect to a solar cell, comprising:

positioning a solar cell in a parallel gap welding apparatus to weld a metal interconnect to the solar cell such that the width of the weld perpendicular to an applied pulling force will be greater than the length of the weld in the direction of said applied pulling force;

adjusting the parameters of the electrode tip resistance to the metal interconnect resistance to a ratio of at least about 10:1 or greater, and said electrical tip resistance to metal interconnect resistance to the thermal mass ratio of the metal interconnect to the tip of said parallel gap welding apparatus of about 60:1;

applying at least one weld pulse with a constant voltage across the welding tips at said parallel gap welding apparatus for a sufficient time to weld said metal interconnect directly to the metallization of said solar cell whereby the welds thus formed are capable of withstanding temperatures in excess of about 185° C.

8. A solar cell array comprising a plurality of solar cells connected in series or in parallel with an adjacent solar cell wherein said solar cells are interconnected by means of a parallel gap weld apparatus to form a metal interconnect between said solar cells, wherein said parallel gap weld apparatus is adjusted to have an electrode tip resistance to metal interconnect resistance ratio of at least about 10:1 or greater, and an electrical resistance ratio of the thermal mass ratio of metal interconnect to the parallel gap welding tip of about 60:1.

4,340,804

WELDING NOZZLE

Adrian H. Krieg, Woodbridge, Conn., assignor to Widder Corporation, Naugatuck, Conn.

Filed Mar. 24, 1980, Ser. No. 132,815

Int. Cl.³ B23K *9/61*

U.S. Cl. 219—137.41 **10 Claims**

6. A welding nozzle for use in a welding gun assembly having a welding tip, comprising a flexible hose having a hollow interior, a hole in the wall of said hose adjacent one end thereof, through which a welding gun can be inserted, a collar mounted on said one end having a plurality of openings therein and a plurality of screws made of electrically non-conducting material extending through said openings and into the interior of said collar for locating and holding said welding gun; a sleeve removably mounted on said collar and providing a

cover for the (electrode) welding tip of said welding gun, the length of said sleeve being sufficiently short to permit the tip (of the electrode) to extend beyond the end of the sleeve thus enabling the use of the tip for welding purposes.

4,340,805

WELDING ELECTRODE WITH A FLUORIDE BASED SLAG SYSTEM

Kenneth E. Banks, Littlestown, Pa., assignor to Chemetron Corporation, Pittsburgh, Pa.

Filed Oct. 14, 1980, Ser. No. 197,058

Int. Cl.³ B23K *35/30*

U.S. Cl. 219—146.23 **9 Claims**

1. A welding electrode having a generally tubular ferrous metal sheath, and a core defined within the sheath for use in gas shield welding wherein the shielding gas is selected from the group consisting of carbon dioxide, inert gas, oxygen and inert gas mixtures, and mixtures thereof, comprising, by total weight of the electrode,

from about 2.0 to 7.5% fluorides selected from the group consisting of calcium fluoride, strontium fluoride and mixtures thereof,

up to about 1.0% silcates selected from the group consisting of calcium silcate, sodium silicate and mixtures thereof,

less than about 1.0% iron oxide,

less than about 2.75% manganese oxide,

from about 0.3 to 1.0% silicon,

from about 0.5 to 1.5% manganese,

from about 0.3 to 1.0% magnesium, and

the balance consisting of an alloy powder selected from the group consisting of nickel, chrome, molybdenum, iron and mixtures thereof.

4,340,806

SAFETY LATCH CONTROL ARRANGEMENT FOR SELF-CLEANING OVEN

Frank H. Bergquist, Elmhurst, Ill., assignor to Harper-Wyman Company, Hinsdale, Ill.

Filed Jan. 21, 1980, Ser. No. 113,734

Int. Cl.³ H05B *1/02;* **F24C** *7/08*

U.S. Cl. 219—413 **4 Claims**

1. A safety interlock control arrangement for apparatus having an access door movable between an open and closed position, the interlock control arrangement comprising a door latch arrangement including a manually operable latch member movable between an open door position and a closed position to latch the access door,

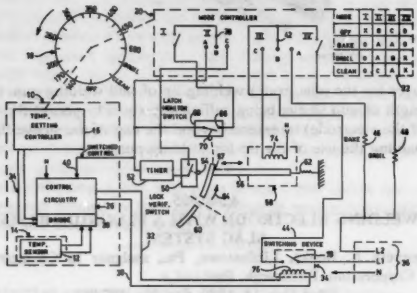
a latch member verification switch including a switch actuator and positioned proximate the latch member for sensing the latched position of the latch member;

a locking member positionable between a first unlocked position and a second locked position, a first portion of said locking member being moved into interfering engagement with the movable latch member when the latch member is in the closed latched position; and

a locking member verification switch including a switch actuator and positioned proximate the latch member for sensing the locked position of said locking member by engagement of said verification switch actuator by said

first portion of said locking member that engages the door latch member,

said door latch member comprising means formed therethrough for receiving said locking member when the door latch arrangement is closed and means for engaging said locking member upon attempted operation of said door latch arrangement is an interfering relationship to prohibit movement of said door latch member,



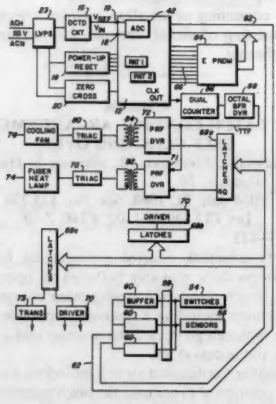
said locking member comprising a generally elongated member being arranged to extend through said latch member receiving means, said first portion of said locking member that engages said verification switch comprising a portion of said elongated member that extends through said latch member receiving means.

4,340,807

OPEN LOOP FUSER CONTROL

Jerome S. Raskin, Newport Beach; Warren L. Hall, Rancho Palos Verdes, both of Calif.; Charles P. Holt, Fairport, and Gerald E. Carlson, Webster, both of N.Y., assignors to Xerox Corporation, Stamford, Conn.

Filed Jan. 10, 1980, Ser. No. 111,048
Int. Cl.[3] H05B *1/02*
U.S. Cl. 219—497 **10 Claims**



1. In an apparatus for producing copies of documents, the apparatus having a fuser for fixing images produced on the copies and a heater for heating the fuser, the combination of,

a triac to control voltage to the heater, the triac in a first state providing voltage to the heater and in a second interrupting voltage to the heater; and

a control for operating the triac including

a low voltage power supply connected to input line voltage; dedicated fuser circuitry connected to the low voltage power supply and providing a stabilized reference voltage and a sample voltage, the sample voltage representing input line voltage;

a microprocessor including a gate activation register;

a comparator and analog to digital converter responsive to the reference voltage and the sample voltage providing a digital signal equivalent of the sample voltage; and

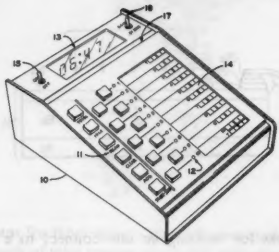
means to selectively gate the triac in response to the digital signal equivalent and the gate activation register to regulate the voltage across the heater.

4,340,808

TIME LOGGING APPARATUS

Dan J. Donohoo, 3175 Hafner Ct., Shoreview, Minn. 55116

Filed Mar. 9, 1979, Ser. No. 19,146
Int. Cl.[3] G07C *1/04*
U.S. Cl. 235—92 AC **18 Claims**



1. A device for monitoring and displaying time charged to any of a plurality of accounts comprising:

a first source of clock signals;

a plurality of keyboard actuated account switches, of which a separate account switch is associated with each of a plurality of primary accounts, each account switch being actuated by a separate key on the keyboard;

memory means for storing counts of clock signals respectively corresponding to times charged to each of a plurality of accounts including said primary accounts;

microprocessor means coupled to said source of clock signals and operable to distribute the clock signals supplied by said first source within said memory means among the accounts for which storage is provided, the account to which clock signals are supplied being changeable by a single switch actuation, the primary account to which any clock signal is added being determined exclusively by the last actuated account switch; and

display means for displaying a time interval corresponding to the count in said memory means for a selected one of the plurality of accounts.

4,340,809

SECURITY DEVICE AND METHOD FOR POSTAGE METER MACHINES

Robert H. Betcher, 4751 NW. 17th Ave., Miami, Fla. 33142

Filed Dec. 22, 1980, Ser. No. 218,733
Int. Cl.[3] G07G *1/00*
U.S. Cl. 235—101 **4 Claims**

1. A security device for a postage meter machine having a rotatable control knob including a letter position and a tape position and a control lever having a machine operate position and meter remove position, comprising:

a disc having an open portion and connected to said rotatable control knob;

a first control arm having a first end for communicating with said disc and a locking sleeve, said first control arm slid-

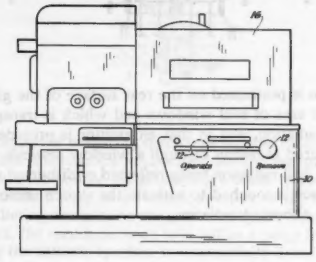
ably connected to said machine to slide in a plane perpendicular to the plane of said disc;

a second control arm having its upper end in communicating relation with said control lever and its lower end connected to said first control arm;

a locking arm having an upper end for communication with said postage meter and a lower end, said locking arm slidably connected to said machine to slide in a direction perpendicular to the movement of said first control arm;

biasing means for biasing said locking arm towards said first control arm, operably connected to said locking arm and said machine;

said control lever moving said first control arm and said second control arm towards said disc when changed from



the machine operate position to said meter remove position;

said first end in communication with said disc when said rotatable control knob is in the tape position, preventing movement of said first and second control arms, locking said control lever in the machine operate position;

said first end in alignment with said open portion when said rotatable control knob is in the letter position, allowing movement of said first and second control arms, enabling said control lever to be moved into said meter remove position and locking said rotatable control knob in the letter position;

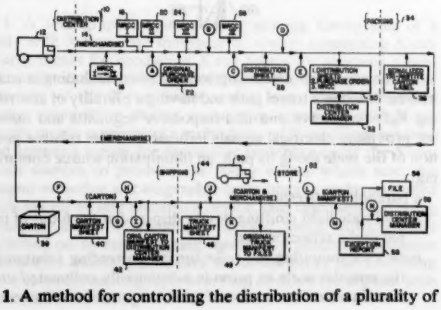
said lower end of said locking arm engaging with said locking sleeve when said meter is removed and disengaging said locking sleeve when said meter is replaced.

4,340,810

METHOD AND APPARATUS FOR MERCHANDISE DISTRIBUTION CONTROL

Marvin Glass, 162-21 Powell Cove Blvd., Beechhurst, N.Y. 11357

Filed Mar. 7, 1980, Ser. No. 128,055
Int. Cl.³ G06K 5/00
U.S. Cl. 235—375 **17 Claims**



1. A method for controlling the distribution of a plurality of items of merchandise to selected locations comprising the steps of:

listing the identification data for groups of items of merchandise intended for distribution to the selected locations, including listing a location identification number and a distribution list serial number;

providing a packing stub label for each selected group of items including printing all of the identification data the distribution list serial number, and the location identification number on each label;

associating a packing stub label with a corresponding selected group of items;

providing an address label having the selected location address, the location identification number, and the distribution list serial number and including a separable segment bearing the location identification number and the distribution list serial number;

placing a container manifest label bearing the location identification number and the distribution list serial number on a container manifest;

containerizing each group of items;

placing the packing stub for each containerized group of items on the container manifest;

affixing the address label to the container;

placing the containers on a conveyance;

separating the segment from the address label and affixing it to a conveyance manifest;

conveying the containers to the selected location; and

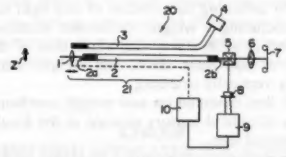
checking the items in the container against the packing stubs on the container manifest.

4,340,811

FOCUSING METHOD AND APPARATUS FOR USE IN AN OPTICAL SYSTEM

Nobuo Yamashita, and Ken-ichi Nakahashi, both of Hachioji, Japan, assignors to Olympus Optical Co., Ltd., Japan

Filed Mar. 3, 1980, Ser. No. 126,661
Claims priority, application Japan, Jun. 12, 1979, 54/73840
Int. Cl.³ G01J 1/20
U.S. Cl. 250—201 **17 Claims**



1. A method for focusing an observation optical system which is receiving light reflected off an object being illuminated by an illumination optical system associated with said observation optical system, said observation optical system having at least two elements whose relative position determines the focus of said observation optical system with respect to said object, said method comprising the steps of:

(a) measuring the brightness of said object while the relative positions of said at least two elements are fixed with respect to one another;

(b) arithmetically determining the location of said object as a function of said measurement; and

(c) adjusting the relative positions of said at least two elements as a function of said determination so as to bring said object into focus by said observation optical system.

4,340,812

RADIATION ENERGY COLLECTION AND TRACKING APPARATUS

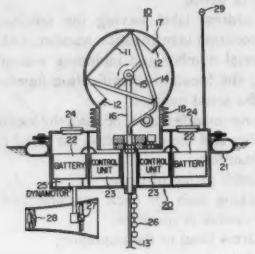
Kei Mori, 3-16-3-501, Kaminoge, Setagaya-ku, Tokyo, Japan

Filed Mar. 19, 1980, Ser. No. 131,693

Claims priority, application Japan, Mar. 26, 1979, 54-34243; Mar. 31, 1979, 54-37732; Mar. 31, 1979, 54-37733; Jul. 5, 1979, 54-84406; Nov. 8, 1979, 54-144662; Nov. 8, 1979, 54-144663; Nov. 13, 1979, 54-146962; Nov. 22, 1979, 54-151392

Int. Cl.³ G01J *1/20*

U.S. Cl. 250—203 R **19 Claims**



1. A light energy collection apparatus comprising:

an optical system for collecting light energy from a light source, comprising:

a lens system for converging the light energy,

an optical coupler upon which the light energy is focused through said lens system, and

a light-guide cable with one end connected to said optical coupler so that the light energy focused on said optical coupler enters said light-guide cable,

a supporting framework for supporting said optical system;

a tracking device for driving said supporting framework in such a way that the optical system is normally kept pointed at said light source, said tracking device comprising:

a main shaft supported for rotation,

one or more light energy collectors each mounted on said main shaft for rotation about an axis perpendicular to the axis of said main shaft, and

means for rotating said one or more light energy collectors about their axes of rotation;

a device for detecting the position of said light source, said device including a weight mechanism mounted on said main shaft in such a way that regardless of the angular position of said main shaft, said weight mechanism is normally vertically oriented;

a spherical lens mounted on said weight mechanism, and a plurality of optical sensors situated at the focal points of said spherical lens,

whereby in response to the outputs from said optical sensors, the direction or position of said light source is detected;

an optically transparent housing enclosing said optical system and said tracking device; and

a supporting means for supporting said housing.

4,340,813

SWITCH PANEL WITH TOUCH SWITCHES

Gerd Sauer, Aachen-Laurensberg, Fed. Rep. of Germany, assignor to Saint Gobain Vitrage, Neuilly-sur-Seine, France

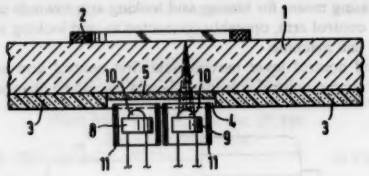
Filed Sep. 9, 1980, Ser. No. 185,966

Claims priority, application Fed. Rep. of Germany, Sep. 12, 1979, 2936815

Int. Cl.³ G01D *5/34*

U.S. Cl. 250—221 **13 Claims**

1. Switch panel comprising a glass plate having markings printed on a surface thereof to form switch spaces for sensors located behind the glass plate in the areas of the switch spaces, characterized in that the switch sensors comprise semi-conductor elements responsive to infrared radiation, in that windows transparent to infrared radiation are provided between the switch sensors and the switch spaces, in that the glass plate has a dull opaque layer on a rear surface thereof which is impermeable to light, in that said windows comprise openings formed in said opaque layer, in that a filter layer comprising a printed



silver stain is positioned on the rear surface of the glass plate within the area of said windows and which is transparent to infrared radiation, and in that an emitter is provided which emits infrared radiation through a window towards the glass plate with said radiation being reflected or disbursed when the switch space is touched to activate the switch sensors by reflected or disbursed radiation.

4,340,814

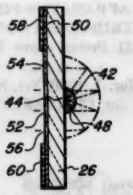
ELECTRO-OPTICAL POSITION TRANSDUCER

James J. DiCiaccio, Somerville, Mass., and John J. Foley, Jr., Weare, N.H., assignors to Dynamics Research Corporation, Wilmington, Mass.

Filed Oct. 14, 1980, Ser. No. 196,596

Int. Cl.³ H04L *3/00*

U.S. Cl. 250—231 SE **9 Claims**



7. For use in an electro-optical encoder, including a scale moveable along a travel path and having a plurality of alternating light-responsive and non-responsive segments and means for providing electrical signals indicative of the relative position of the scale along its path, an illumination source comprising:

a parabolic reflector;

a solid state light emitting device disposed at the focus of the parabolic reflector; and

means for mounting the reflector in confronting relation to the encoder scale to provide substantially collimated uniform intense illumination of intended portions of the scale.

4,340,815

PREPARATION OF MATERIAL FOR EXAMINATION BY TRANSMISSION ELECTRON MICROSCOPY TECHNIQUES

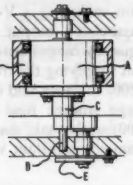
Joseph Franks, Teddington, England, assignor to Ion Tech Limited, Teddington, England

Continuation-in-part of Ser. No. 957,849, Nov. 6, 1978, abandoned. This application May 19, 1980, Ser. No. 150,745

Claims priority, application United Kingdom, Nov. 7, 1977, 46311/77

Int. Cl.³ G01N *23/00*

U.S. Cl. 250—307 17 Claims



1. A method of preparing specimens suitable for examination by electron microscopy techniques comprising providing a saddle-field ion source for producing a beam of ions, placing the specimen in front of a cathode aperture of the ion source, and irradiating one spot on the specimen by the beam to erode its surface, the specimen being held within a range from almost touching the cathode aperture to substantially 2 cms therefrom during irradiation to thereby rapidly erode the specimen to penetration and produce an area surrounding the penetration of suitable thickness for transmission of electrons.

4,340,816

METHOD OF PRODUCING TOMOGRAMS WITH X-RAYS OR SIMILARLY PENETRATING RADIATION

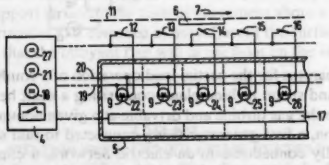
Ottfried Schott, Erlangen, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

Continuation of Ser. No. 837,198, Sep. 28, 1977. This application Jul. 19, 1979, Ser. No. 58,869

Claims priority, application Fed. Rep. of Germany, Oct. 19, 1976, 2647167

Int. Cl.³ G03B *41/16*

U.S. Cl. 250—445 T 4 Claims



1. A tomographic system for producing tomograms of a body with X-rays, said tomographic system comprising X-ray source means for producing X-ray beams for scanning a subject under examination, a recording device for registering the intensity of the X-ray beams which issue from the subject under examination during a scanning operation, said X-ray source means comprising a multiplicity of X-ray beam sources, and scanning means for successive switching-on of the X-ray beam sources to produce the X-ray beams which scan the subject such that a tomographic layer image can be produced with the aid of said recording device, said beam sources being arranged along a scanning path and being consecutively switched on by said scanning means in a selectable sequence and with a duration necessary for actuation of the recording device, means causing said recording device to be aligned with the respective switched on X-ray beam sources so as to receive the consecutively switched on X-ray beams therefrom, said X-ray sources having a vacuum envelope and being formed by an anode within said envelope extending along said scanning path and at least five cathodes within said envelope and disposed in operative relation to successive portions of said anode, and said scanning means comprising a switching grid connected to control emission of electrons from each cathode to the associated portion of the anode, said vacuum envelope comprising a single vacuum envelope, said anode comprising a single elongated anode element in said single vacuum envelope, the successive cathodes being disposed in said single vacuum envelope in adjacent relation to successive portions of said single elongated anode element, and the successive cathodes having a special interval from one another of not more than five centimeters.

4,340,817

SIGNAL ELEMENT WITHOUT A LAMP

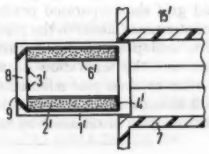
Ferdinand Quella, Gauting, and Heinz Pape, Munich, both of Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

Filed Jun. 19, 1980, Ser. No. 161,078

Claims priority, application Fed. Rep. of Germany, Jul. 16, 1979, 2928700

Int. Cl.³ F21V *9/16*; F21K *2/00*

U.S. Cl. 250—458 40 Claims



1. In a signal element without a lamp having a moveable member received in a housing member for movement between at least two positions to cause actuation of parts of said element, the improvement comprising one of said housing and moveable members including a fluorescent member consisting of a body of material having an index of refraction >1 and containing fluorescent particles for fluorescently collecting and scattering incident light to create fluorescent light, and means for uncoupling concentrated fluorescent light from the fluorescent member to a point of the element in response to a selected position of the moveable member in the housing member.

4,340,818

SCANNING GRID APPARATUS FOR SUPPRESSING SCATTER IN RADIOGRAPHIC IMAGING

Gary T. Barnes, Birmingham, Ala., assignor to The Board of Trustees of the University of Alabama, Birmingham, Ala.

Filed May 14, 1980, Ser. No. 149,754

Int. Cl.³ H01J *35/16*

U.S. Cl. 250—509 11 Claims

1. A scanning grid apparatus exhibiting high primary and low secondary x-ray transmission of x-ray radiation, said apparatus adapted to be positioned between an x-ray source defining a focal spot and an x-ray sensitive image receptor such that x-rays emitted from said source pass through a subject and through said grid apparatus to said receptor, comprising:

at least one scanning grid comprising,

a first pair of opposed longitudinally extending grid slat retainers,

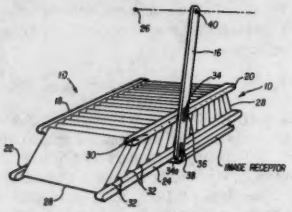
a second pair of opposed longitudinally extending grid slat retainers, said pairs of grid slat retainers disposed in paral-

lel planes with said first pair adapted to be located between said subject and said second pair,

a plurality of radiopaque grid slats pivotably attached at pivot points at predetermined intervals between the retainers of one of the pairs of said grid slat retainers, and

means for scanning said grid slats by moving at least one of said pairs of retainers longitudinally in a direction transverse to said plural grid slats and for maintaining said grid slats focused on said focal spot during said scanning, comprising,

means for coupling at least said one pair of retainers having



said pivot points to said focal spot and for moving said at least said one pair longitudinally in a direction transverse to said grid slats, and

the other pair of said retainers to which said grid slats are not pivotably attached comprising spacing means for maintaining said grid slats separated predetermined distances within predetermined limits in the plane of said other pair of retainers, said predetermined intervals between said pivot points and the separation distances between slats along the other retainer pair selected to maintain focus of each of said slats on said focal spot during movement of said at least one pair of retainers by said coupling means.

4,340,819

PHOTOELECTRIC ELEMENT ARRAY WITH AUTOMATIC CONTROL OF THE CHARGE STORAGE TIME

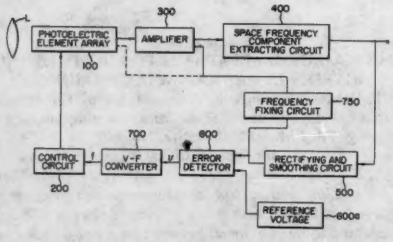
Akira Ogasawara, Yokohama; Hiroshi Shirasu, Kawasaki, and Ken Utagawa, Yokohama, all of Japan, assignors to Nippon Kogaku K.K., Tokyo, Japan

Continuation of Ser. No. 105,271, Dec. 19, 1979, abandoned. This application Apr. 29, 1981, Ser. No. 258,763

Claims priority, application Japan, Dec. 22, 1978, 53/158845; Dec. 29, 1978, 53/163079

Int. Cl.³ H01J *40/14*

U.S. Cl. 250—578 **9 Claims**



1. A photoelectric converter device comprising:

(a) an image forming optical system;

(b) a photoelectric converting portion for photoelectrically converting a light image formed by said image forming optical system and generating an associated output voltage associated with the information contained in said light image, said photoelectric converting portion including a charge storage type photoelectric element array comprising a plurality of charge storage type photoelectric elements each of which stores charges generated in accordance with the intensity of incident light and generates a photoelectric output related to both the intensity of the light and the storage time; and

(c) a control circuit for driving said photoelectric element array;

the improvement comprising;

(d) a feedback circuit (**500, 600, 700**) connected between said photoelectric converting portion (**100, 300, 400**) and said control circuit (**200**);

said feedback circuit including a V-F converter (**700**) for receiving said associated output voltage as input and generating a frequency output corresponding thereto;

said feedback circuit supplying the frequency output to said control circuit (**200**) to cause said control circuit (**200**) to control the charge storage time of said photoelectric element array (**100**) so that said associated output voltage becomes a substantially constant value independently of the light image.

4,340,820

APPARATUS AND METHOD FOR PARTIAL-LOAD OPERATION OF A COMBINED GAS AND STEAM TURBINE PLANT

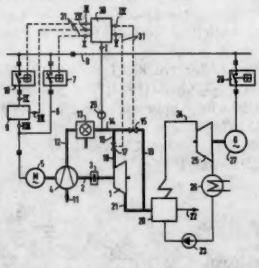
Roland Meyer-Pittroff, Eckental; Bernard Becker, Mülheim, and Hermann Finckh, Nuremberg, all of Fed. Rep. of Germany, assignors to Kraftwerk Union Aktiengesellschaft, Mülheim, Fed. Rep. of Germany

Filed Nov. 10, 1980, Ser. No. 205,297

Claims priority, application Fed. Rep. of Germany, Nov. 9, 1979, 2945404

Int. Cl.³ F02C *7/02*

U.S. Cl. 290—40 R **9 Claims**



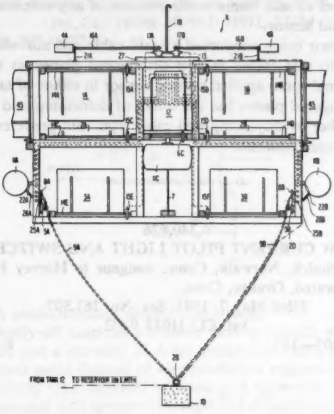
1. Apparatus for the partial load operation of a combined gas turbine and steam turbine plant, comprising a shaft being connected to the gas turbine and drivable at a given nominal speed of rotation, a first generator being connected to said shaft and electrically connectible to an electric network, a compressor being connected to said shaft and connected upstream of the gas turbine in gas flow direction, a heat exchanger having an output and a variable heat supply and being connected upstream of the gas turbine in gas flow direction, a steam generator for the steam turbine being connected downstream of the gas turbine in gas flow direction for receiving exhaust gases therefrom, a second generator being connected to the steam turbine and electrically connectible to the electric network for supplying given nominal power thereto along with said first generator, means for giving to the electric network and taking away from the network at least part of said nominal power if said shaft rotates at less than said nominal speed of rotation, and means for reducing the speed of rotation of the gas turbine for preventing a substantial drop in temperature at said output of said heat exchanger if said heat supply of the heat exchanger is reduced.

4,340,821

APPARATUS FOR HARNESSING WAVE ENERGY

David M. Slonim, 1869 P.O.B., 3, Ourania St., Nicosia, Cyprus

Filed Jun. 19, 1980, Ser. No. 161,147
Int. Cl.³ F03B 13/12
U.S. Cl. 290—53 2 Claims



1. Apparatus for harnessing wave energy, comprising a floatable support structure, means anchoring the support structure to a single point on the bottom of a body of water so that wave action will position the structure, pump means supported by the support structure, means responsive to waves for operating the pump means, and means for conveying the wave energy to an on-shore location, the wave responsive means including at least one buoyant flap mounted on the support structure for pivotal movement about a substantially horizontal axis spaced, in use, below the surface of the water by such a distance that the flap will be generally vertically upstanding in the water broadside to the waves in the position of the anchored structure as determined by wave action, the wave-responsive means further including at least one non-buoyant downwardly depending flap mounted on the support structure for pivotal movement about a substantially horizontal axis disposed in use above the surface of the sea, the wave-responsive means further including at least one buoyant flap mounted on the support structure for pivotal movement about a substantially horizontal axis disposed in use adjacent the surface of the water so that the buoyant flap will in use float on the surface of the water.

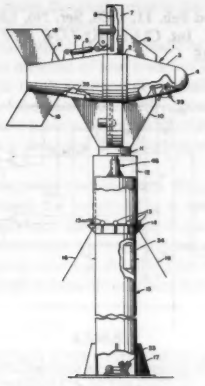
4,340,822

WIND POWER GENERATING SYSTEM

Hendrick J. Gregg, 625 S. Alton Way, Denver, Colo. 80231

Filed Aug. 18, 1980, Ser. No. 178,868
Int. Cl.³ F03D 1/02
U.S. Cl. 290—55 2 Claims

1. A wind power generating system comprising a shaped, closed, hollow central member having a generally circular cross section which is cylindrical in an intermediate part of said member, tapers forwardly and inwardly to a nose at the front and tapers rearwardly and inwardly to a back area, a plurality of open cylindrical shrouds fixedly mounted around the outside of said central member and supported at least in part by the outer surface of said central member, fins mounted forwardly on the outer surface of said central member and extending outwardly therefrom and tangentially against adjacent shrouds to channel wind flow to said shrouds, a propeller mounted centrally on a shaft in each of said shrouds, each said propeller adapted to be driven by wind passing over the nose and forward of said central member, and means responsive to



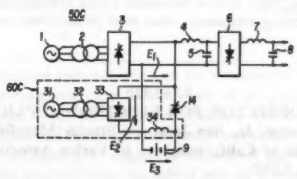
the rotation of said propellers operative to generate electrical power.

4,340,823

UNINTERRUPTIBLE POWER SUPPLY

Yoshiaki Miyazawa, Kunitachi, Japan, assignor to Tokyo Shibaura Denki Kabushiki Kaisha, Kawasaki, Japan

Filed Apr. 30, 1981, Ser. No. 258,927
Claims priority, application Japan, May 7, 1980, 55/60189
Int. Cl.³ H02J 7/02, 9/04
U.S. Cl. 307—66 12 Claims



1. An uninterruptible power supply comprising:

rectifier means having input and output terminals for receiving at said input terminals a first AC power signal and converting said first AC power signal into a first DC power signal to produce at said output terminals a DC power output of said uninterruptible power supply;

battery means for supplying a second DC power signal;

controlled rectifier means having input and output terminals for receiving at the input terminals thereof a second AC power signal and converting said second AC power signal into a controlled power output provided at the output terminals thereof;

switch means connected to receive said second DC power signal from said battery for producing said second DC power signal as said DC power output when said first AC power signal is interrupted; and

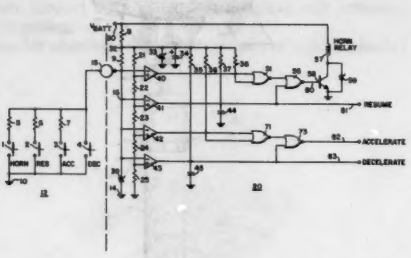
the output terminals of said rectifier means being connected in series with the output terminals of said controlled rectifier means and said battery means, whereby said first DC power signal and said controlled power output are added and applied to said battery means for charging thereof.

4,340,824

AUXILIARY STEERING WHEEL COMMAND SYSTEM

Mark L. Shaw, Mesa, Ariz., assignor to Motorola, Inc., Schaumburg, Ill.

Filed Feb. 11, 1980, Ser. No. 120,460
Int. Cl.³ H04Q 1/24, 5/02
U.S. Cl. 307—115 6 Claims



1. A system for transmitting a selected one of a plurality of commands to be multiplexed and decoded to control output devices comprising:

first circuit means including a plurality of independent actuating switches;

second circuit means for generating a plurality of voltage signals in response to the condition of said actuating switches;

slip-ring means for receiving said voltage signals and supplying them to a third circuit means;

a plurality of output devices operative in response to voltage signals from said third circuit means;

said third circuit means including decoding logic means to produce a selected one of plurality of output signals corresponding to the condition of said independent actuating switches to energize a predetermined one of said output devices;

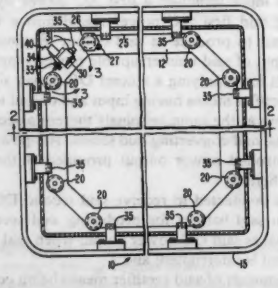
said decoding logic means including timed latch gates to eliminate switching transients from said preselected output signals.

4,340,825

TOUCH DETECTOR FOR ELECTRON APPLICATOR

James C. Carter, Jr., San Jose, and Stanley Mansfield, Santa Clara, both of Calif., assignors to Varian Associates, Inc., Palo Alto, Calif.

Filed Sep. 26, 1980, Ser. No. 191,109
Int. Cl.³ G01N 23/00
U.S. Cl. 307—116 10 Claims



1. A touch detector with sensitivity substantially independent of the orientation of said detector and the direction of activating force comprising:

a frame,

a sensor,

an elastic member affixed to said frame and having a movable free end,

a cable with one end affixed to said frame and the other end affixed to said free end of said elastic member, and,

a guiding means supported by said frame for maintaining said cable in a predetermined tensioned position with respect to said frame in the absence of any external force on said sensor,

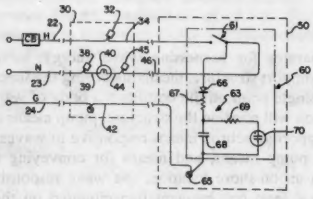
said sensor being supported by said cable and movable relative to said frame in two orthogonal planes so that an external force applied on said sensor in either of said two orthogonal planes has the effect of deforming said elastic member by displacing said cable from said predetermined tensioned position.

4,340,826

LOW CURRENT PILOT LIGHT AND SWITCH

Paul Muchnick, Norwalk, Conn., assignor to Harvey Hubbell Incorporated, Orange, Conn.

Filed May 7, 1981, Ser. No. 261,507
Int. Cl.³ H02J 9/02
U.S. Cl. 307—157 6 Claims



1. An indicator light device for use in combination with an electrical service system for selectively energizing a load, the system including a source of electrical power, an electrical load device, a switch mountable in a switch housing at a location remote from the load device, and power, neutral and ground conductors extending from the source to the load, of which only the power and ground conductors extend to the switch housing, and wherein the ground conductor is connected to a ground terminal in the switch housing and has a prescribed maximum allowable intentional current limitation, and the switch is of the type having a first terminal connected directly to the power conductor leading to the source, a second terminal connected to a conductor leading to the load and means for opening and closing the switch circuit between the first and second terminals, the indicator light device comprising:

a circuit including a diode, a capacitor and a first resistor connected in series circuit relationship between said second terminal of said switch and the ground conductor in the switch housing; and

indicating means connected in parallel circuit relationship with said capacitor,

said indicating means having a breakdown potential less than the voltage between said power and ground conductors so that when power is applied to said circuit said indicating means periodically flashes,

the values of said capacitor and first resistor being selected so that the maximum current normally flowing through said circuit and into said ground conductor is less than one-tenth of said prescribed limitation,

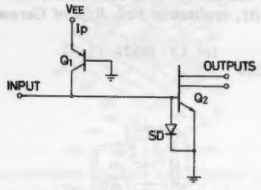
said indicating means being mounted so that light emanating therefrom is normally visible from outside of the switch housing when the switch is closed to complete a power circuit to the load device.

4,340,827

SEMICONDUCTOR INTEGRATED CIRCUIT

Jun-ichi Nishizawa, Sendai, and Yutaka Hayashi, Hoya, both of Japan, assignors to Zaidan Hojin Handotai Kenkyu Shinkokai, Sendai and Agency of Industrial Science and Technology, Tokyo, both of, Japan

Filed May 15, 1979, Ser. No. 39,437
Claims priority, application Japan, May 16, 1978, 53-57184
Int. Cl.[3] H03K *19/091;* H01L *27/04*
U.S. Cl. 307—477 23 Claims



1. A semiconductor circuit comprising:

a normally-off unipolar transistor having a single source electrode and a plurality of drain electrodes, and a plurality of current paths formed of semiconductor regions of one conductivity type disposed between said respective drain electrodes and said source electrode and a single gate semiconductor region having electrically connected portions forming pn junctions with a semiconductor region of each of said current paths, and a single gate electrode connected to said gate semiconductor region, said current paths being normally pinched off and becoming conductive upon application of a forward bias to said gate electrode; and

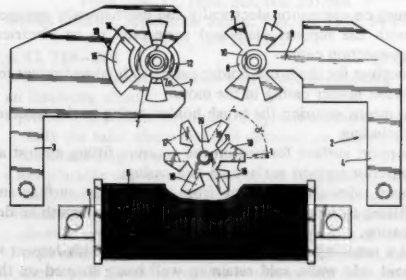
a single Schottky diode connected between said single gate and single source electrodes in such direction that a forward bias to said gate electrode is also a forward bias for the Schottky diode and that the Schottky diode forms a bypass for the gate-source path.

4,340,828

SINGLE PHASE STEPPING MOTOR

Roland Sudler, Frankfurt, and Jean-Francois Schwab, Schwalbach, both of Fed. Rep. of Germany, assignors to Quarz-Zeit AG, Frankfurt am Main, Fed. Rep. of Germany

Continuation of Ser. No. 875,789, Feb. 7, 1978, abandoned. This application Mar. 14, 1980, Ser. No. 130,394
Claims priority, application Fed. Rep. of Germany, Feb. 11, 1977, 2705684
Int. Cl.[3] H02K *37/00*
U.S. Cl. 310—49 R 13 Claims



1. In a single phase stepping motor, particularly for clocks, with a rotor having several pole teeth and a stator, the latter being made of two stator parts connected with one another via a bridge part, the latter carrying the excitation winding, of which each stator part has on its free end and equal or smaller number (in comparison to the rotor pole number) of the stator pole teeth as well as a passage opening for the rotor shaft, the stator pole teeth being directed towards the face sides of the rotor, the improvement wherein

said rotor and said stator parts are made of an unmagnetized soft magnetic material of low retentivity,

each rotor pole tooth substantially radially overlaps axial facing sides of the stator pole teeth in positions of the rotor and comprises a main pole and an auxiliary pole, the latter extending in a direction of rotation and formed on said main pole,

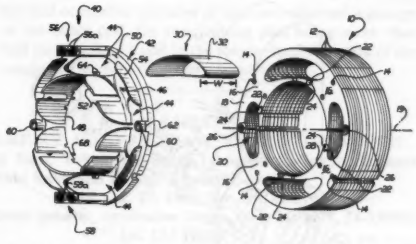
a permanent magnetic circuit means disposed between the stator pole teeth for determining a rest position of the rotor with the stator unexcited and for producing alternating poles of said rotor, the rotor poles being unmagnetized by the excitation winding, the field lines of said permanent magnetic circuit means close across said rotor poles.

4,340,829

MOLDED END COIL INSULATOR

Billy R. McCoy, Jackson, Tenn., assignor to Sheller Globe Corporation, Cleveland, Ohio

Filed Jun. 22, 1979, Ser. No. 51,051
Int. Cl.[3] H02K *11/00*
U.S. Cl. 310—71 14 Claims



1. A molded end coil insulator for attachment to an end face of a ferromagnetic core to form part of the ground insulation for magnet wires wound thereabout and about the core, said molded end coil insulator comprising a molded body having a surface configured to engage a surface of the ferromagnetic core, said molded body including one or more terminal supports each of which is configured to receive and retain a terminal member and a magnet wire in good electrical contact with each other, each of said terminal supports being further configured to grip a lead wire from an external circuit and connected with the terminal member to isolate a section of the lead wire connected with the terminal member from strains and vibrations in the external circuit, each terminal support comprising a pair of facing surfaces which are spaced apart by a distance less than the diameter of the lead wire for engaging the lead wire in an interference fit to isolate the section of lead wire from strains and vibrations in the external circuit.

4,340,830

ELECTRIC MOTOR ASSEMBLY

Sigurd Hoyer-Ellefsen, New Canaan, Conn., assignor to SCM Corporation, New York, N.Y.

Filed Nov. 30, 1979, Ser. No. 99,181
Int. Cl.[3] H02K *5/00*
U.S. Cl. 310—89 3 Claims

1. An electric motor assembly comprising:

(A) a one-piece housing formed with a base section and a pair of spaced apart upstanding end walls, each one of said end walls being formed with an opening therethrough

having a coaxial relation therebetween and one of said openings being formed with a step;

(B) a stator assembly including a central bore therethrough;

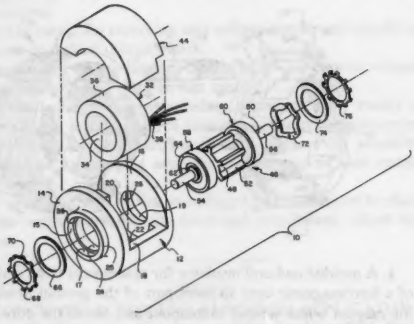
(C) means for mounting said stator assembly on said base section with said central bore being coaxially aligned with said openings;

(D) a rotor fixedly supported on a shaft, said rotor being disposed within said central bore and said shaft being rotatably supported in said openings;

(E) a first bearing axially fixed on one end of said shaft for permitting relative rotational movement therebetween, said first bearing being supported in said opening with said step;

(F) a second bearing axially fixed on the other end of said shaft for permitting relative rotational movement therebetween, said second bearing being supported in the other opening; and

(G) means for preventing axial movement of said rotor comprising:



(a) a first set of retaining members including a rigid flat washer and a fingered lock washer located in said opening with said step, said flat washer being positioned in abutment with said step and said first bearing and said lock washer having fingers that grip the peripheral surface of said stepped opening to firmly hold said flat washer in said position to prevent axial displacement of said rotor in one direction; and

(b) a second set of retaining members including a resilient ring, a second flat washer and a second fingered lock washer located in the other opening, said resilient ring being positioned in abutment with said second bearing through said second flat washer and said second lock washer having fingers that grip the peripheral surface of the other opening to firmly hold said second flat washer and said resilient ring in said position to prevent axial displacement of said rotor in a direction opposite said one direction.

4,340,831

BRUSH HOLDER FOR FRACTIONAL HORSEPOWER MOTORS

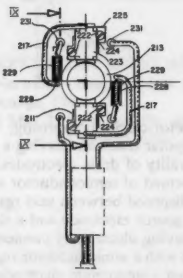
Gerhard Kuhlmann, Stuttgart; Ernst Kränzler, Leinfelden-Echterdingen, both of Fed. Rep. of Germany; Gerhard Baer, Solothurn, Switzerland; Kurt Ruetsch, Riedholz, Switzerland; Hansruedi Ramseier, Zuchwil, Switzerland; Heinz Dubach, Lauterbach, Switzerland; Martin Lang, Biberist, Switzerland; Hans Schwartz, Günsberg, Switzerland, and Hans Aebi, Derendingen, Switzerland, assignors to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

Filed Jul. 5, 1979, Ser. No. 54,781

Claims priority, application Fed. Rep. of Germany, Jul. 20, 1978, 2831928

Int. Cl.³ H02K *13/00*

U.S. Cl. 310—239 **19 Claims**



1. Brush holder-receiver assembly for fractional horse power, commutator-type electric motor having

a brush holder casing;

a conductive brush movably retained in the casing;

a spiral brush spring engaging the brush at one end thereof and biasing the brush;

wherein

the brush casing defines an open tube which, in cross section, is essentially rectangular and has four smooth, continuous, uninterrupted walls forming smooth, uninterrupted interior surfaces;

and comprising

a support plate engaged by and supporting the spring at its other end, and forming a combined support and electrical connecting plate;

a pigtail positioned within the spring and flexibly electrically connecting the brush and said connecting support plate and having a length which is of limited length to prevent escape of the brush from the casing after wear of the brush;

a push-on connector electrically and mechanically engaged with the support plate and connected to an electrical connection cable;

a receiver for the brush holder casing to hold and orient the brush holder casing in the motor;

and means securing the brush holder casing to the receiver including

a support surface formed on the receiver fitting against an exterior support surface on said casing;

spaced sidewalls projecting from said support surface and fitting against exterior lateral surfaces of said brush holder casing;

and a retaining wall extending transversely with respect to said side walls, said retaining wall being formed on the receiver located in alignment with the brush holder casing and positioned to provide a stop for said combined support and electrical connecting plate and the push-on connector, and forming a counter element for said brush spring.

4,340,832

DYNAMOELECTRIC MACHINE BRUSH HOLDER

Robert A. Cheetham, Anderson, and Ralph E. Sears, McCordsville, both of Ind., assignors to General Motors Corporation, Detroit, Mich.

Filed Oct. 14, 1980, Ser. No. 196,835
Int. Cl.³ H02K 13/00
U.S. Cl. 310—239 2 Claims

1. A dynamoelectric machine brush holder comprising:
a unitary member of a suitable material formed to provide a brush accommodating recess bounded on three sides by two opposing substantially parallel side segments and a transverse segment;
a pair of mounting flanges extending in opposite directions from and substantially normal to the ends of said side segments remote from said transverse segment;
a brush lead lug accommodating flange extending from a selected one of said side segments in a direction away from said brush accommodating recess at a location between said transverse segment and said mounting flange;
a pair of spring retainer members extending from and located in spaced relationship along the other one of said side segments between said transverse segment and said mounting flange with each of said retainers being formed to provide a respective spring retaining recess adjacent said brush accommodating recess;
and a unitary torsion spring having two coils separated by an intermediate loop portion positioned in such a manner that each said coil is accommodated by a respective said spring retaining recess with said intermediate loop portion extending between said spring retainer members into said brush accommodating recess and arranged to exert a pressure on a brush located within said brush accommodating recess.

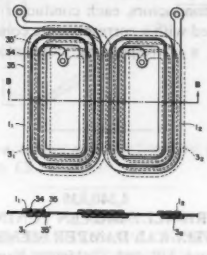
4,340,833

MINIATURE MOTOR COIL

Michio Sudo, Kuki, and Hitoshi Miura, Tatebayashi, both of Japan, assignors to Kangyo Denkikiki Kabushiki Kaisha, Tokyo, Japan

Filed Nov. 17, 1980, Ser. No. 207,484
Claims priority, application Japan, Nov. 26, 1979, 54-153175
Int. Cl.³ H02K 1/12
U.S. Cl. 310—268 17 Claims

1. A printed circuit miniature motor coil comprising:
an insulating sheet;
a plurality of printed circuit spiral type first coils of substantially the same shape and size disposed on one surface of said insulating sheet;
a like plurality of printed circuit second coils having substantially the same shape and size as said first coils, said second coils being disposed on the other surface of said insulating sheet in opposing relation respectively to each of said first coils and, when viewed from the same direction, having their spiral direction reverse to that of said first coils, the inner end of each of said spiral first coils being connected to the inner end of the opposing one of said second coils via a connection section which passes through said insulating sheet, and the outer ends of said first and second coils also being connected to one another such that all the coils are in series connection; and
first and second terminals respectively provided at the opposite ends of said series connection of coils for energizing said series connected coils so that each of said first coils produces magnetic flux which is in phase with the flux produced by the opposing one of said second coils;
the relative positions of the opposing first coils and second coils in each pair of opposing coils being shifted relative to



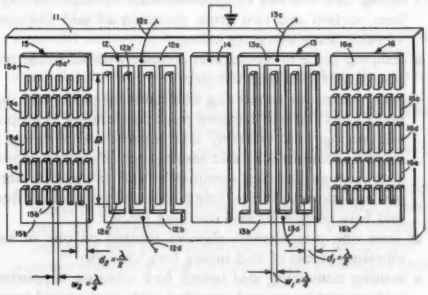
one another to enhance the mechanical strength of the motor coil sheet, the shifted relationship being such that the conductor portion of at least one winding on one coil of each pair of opposing first and second coils overlies the space between the conductor portions of two adjacent windings of the other coil in said pair of coils and overlaps the said conductor portions of said two adjacent windings of the other coil, the overlapping part being more than half the length of a coil in the longitudinal direction of the conductor section of the one winding.

4,340,834

SURFACE ACOUSTIC WAVE RESONATOR DEVICE

Kouji Sato, Yokohama, Japan, assignor to Tokyo Shibaura Denki Kabushiki Kaisha, Kawasaki, Japan

Filed Aug. 27, 1980, Ser. No. 181,746
Claims priority, application Japan, Aug. 31, 1979, 54-110301
Int. Cl.³ H03H 9/26
U.S. Cl. 310—313 D 14 Claims



1. A surface acoustic wave resonator device comprising:
a substrate having at least a surface layer of piezoelectric material;
at least one interdigital transducer means having an effective length and disposed on the piezoelectric surface for converting an input electrical signal to surface acoustic waves which propagate on the piezoelectric surface of the substrate;
a pair of spaced grating reflector means, each having an aperture length and disposed on the piezoelectric surface for reflecting the surface acoustic waves, the aperture length of each grating reflector means having substan-

tially the same effective length as the interdigital transducer means; and

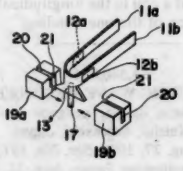
at least one of said grating reflector means including means for suppressing higher transverse modes, said suppressing means comprising a first group of interconnected parallel spaced conductors, a second group of interconnected parallel spaced conductors, each conductor of said second group being aligned with a corresponding conductor of said first group, and at least one group of isolated parallel conductors positioned between said first and second groups of conductors, each conductor of said one group being aligned with a corresponding conductor of said first group and a corresponding conductor of said second group.

4,340,835

PIEZOELECTRICALLY DRIVEN TUNING FORK WITH INTEGRAL DAMPER MEMBER

Takeshi Nakamura, Uji, and Yoshimasa Yamashita, Kameoka, both of Japan, assignors to Murata Manufacturing Co., Ltd., Japan

Continuation of Ser. No. 5,197, Jan. 22, 1979, abandoned. This application Aug. 18, 1980, Ser. No. 178,892
Claims priority, application Japan, Jan. 21, 1978, 53/8685
Int. Cl.³ H01L *41/08*
U.S. Cl. 310—321 **10 Claims**



1. A tuning fork, comprising:

a tuning fork vibrator of approximately U-shape, having a base portion and two arms, the arms of said U-shaped vibrator being vibrating pieces;

a damping piece in mechanical contact with said base portion of said U-shaped vibrator;

support means for supporting said damping piece, said support means and said damping piece cooperating to support said tuning fork vibrator; said support means being in electrical contact with said base portion of said vibrator so as to form an electrical terminal for said tuning fork vibrator, said support means being physically separated from said base portion by said damping piece;

at least one piezoelectric element located on one of said vibrating pieces of said tuning fork vibrator;

a housing containing said tuning fork vibrator, supporting said support means and provided with an electrical terminal connected to said piezoelectric element;

the mass of said tuning fork vibrator being a large enough fraction of the combined mass of said vibrator, said support means, said damping piece, said at least one piezoelectric element and said housing to cause a significant spurious response in the vicinity of approximately one-half the natural frequency of said tuning fork vibrator; and

a damper means provided between and in mechanical contact with said damping piece and said housing, for damping vibrations of said tuning fork vibrator in the vicinity of approximately one-half of said natural vibration frequency of said tuning fork vibrator.

4,340,836

ELECTRODE FOR MINIATURE HIGH PRESSURE METAL HALIDE LAMP

Rolf S. Bergman, Cleveland Hts., and William H. Lake, Novelty, both of Ohio, assignors to General Electric Company, Schenectady, N.Y.

Filed Sep. 11, 1978, Ser. No. 940,957
Int. Cl.³ H01J *17/06, 61/073*
U.S. Cl. 313—211 **9 Claims**

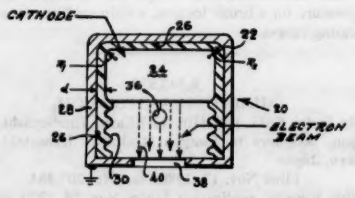
1. A miniature metal vapor lamp arc tube comprising a fused silica envelope having a volume not exceeding 1 cc and containing an ionizable fill comprising mercury and metal halides, electrodes without alkaline earth electron emission material sealed into opposite ends of said envelope for supporting a discharge current not exceeding 1 ampere, each electrode comprising a tungsten shank in the range of 5 to 15 mils and above the wire size at which melt-back occurs at the current level in said lamp, and a mandrel-less coiled-coil single-layer overwind of primary tungsten wire not exceeding 3 mils originally wound on a primary mandrel of 3 to 7 mils subsequently removed, said overwind being wrapped around said shank and extending short of the tip thereof.

4,340,837

LOW VOLUME, LIGHTWEIGHT, HIGH VOLTAGE ELECTRON GUN

Thomas W. Meyer, Albuquerque, N. Mex., assignor to The United States of America as represented by the Secretary of the Air Force, Washington, D.C.

Filed Jan. 10, 1980, Ser. No. 110,960
Int. Cl.³ H01J *1/88, 19/42*
U.S. Cl. 313—259 **4 Claims**



1. A low volume, lightweight, high voltage electron gun comprising a housing, said housing having sides made of electrically conductive material, one of said sides having means therein for allowing a stream of electrons to pass therethrough, a cathode, said cathode being mounted juxtaposed at least a portion of all of said sides of said housing except said side having said electron passing means therein, a high voltage source being operably connected to said cathode, said high voltage source producing at least one hundred thousand volts, a thin piece of solid dielectric material having a preselected breakdown strength being interposed between said cathode and said sides of said housing juxtaposed said cathode, said dielectric material being in direct contact with both said cathode and said sides of said housing juxtaposed said cathode as well as being in direct contact with all other portions of said sides of said housing except said side having said electron passing means therein, said preselected breakdown strength of

said dielectric material being greater than the voltage stress between said cathode and said sides of said housing juxtaposed thereto and means operably connected to the interior of said housing for creating a vacuum therein.

4,340,838

CONTROL PLATE FOR A GAS DISCHARGE DISPLAY DEVICE

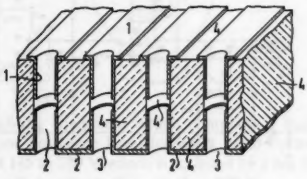
Manfred Kobale, Faistenhaar; Burkhard Littwin, Hohenschaeftlarn, and Rolf Wengert, Munich, all of Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

Filed May 15, 1980, Ser. No. 149,915

Claims priority, application Fed. Rep. of Germany, Jul. 31, 1979, 2931077

Int. Cl.³ H01J *1/46*

U.S. Cl. 313—348 6 Claims



1. A control plate for a gas discharge display device comprising:

a carrier plate consisting of electrically insulating material;

a plurality of spaced parallel metallic row conductor tracks disposed on a first side of said carrier plate;

a plurality of spaced parallel metallic conductor tracks disposed on a second opposite side of said carrier plate perpendicularly with respect to said row conductor tracks, said row and column conductor tracks in combination forming a matrix;

a plurality of control holes disposed in said carrier plate at points of intersection of said row and column conductor tracks in said matrix,

said metallic row and column tracks respectively extending a distance into said control holes from opposite sides of said carrier plate and separated within said control holes by a gap of exposed insulating material of said carrier plate forming a ring of high resistance.

4,340,839

ZINC SULFIDE CERAMIC MATERIAL AND CATHODE RAY TUBES USING THE SAME

Yosuke Fujita, Ashiya; Fumio Fukushima, Moriguchi; Yoji Fukuda, Hirakata, and Tsuneharu Nitta, Katano, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Kadoma, Japan

Filed Dec. 20, 1979, Ser. No. 105,862

Claims priority, application Japan, Dec. 27, 1978, 53-165776; Jun. 11, 1979, 54-73423

Int. Cl.³ H01J *29/20*; C04B *35/00*; C09K *11/10*

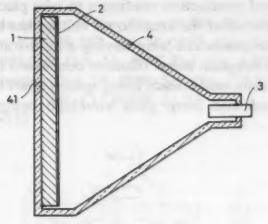
U.S. Cl. 313—466 15 Claims

1. Particles of zinc sulfide sintered ceramic material adapted for use as the luminescent screen in a cathode ray tube consisting essentially of zinc sulfide and at least one element selected from the group consisting of Ca, Sr and Ba.

3. Particles of zinc sulfide sintered ceramic material adapted for use as the luminescent screen in a cathode ray tube, said material consisting essentially of zinc sulfide;

at least one element selected from the group consisting of Ca, Sr and Ba;

at least one activator selected from the group consisting of Au, Ag, Cu, Mn and Tb; and



at least one co-activator selected from the group consisting of Al, Ga, In, Cl, Br and I.

4,340,840

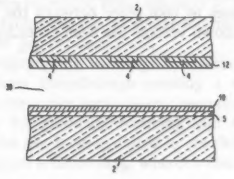
DC GAS DISCHARGE DISPLAY PANEL WITH INTERNAL MEMORY

Mohamed O. Aboelfotoh, Poughkeepsie, and Marvin B. Skolnik, Kingston, both of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Apr. 21, 1980, Ser. No. 142,564

Int. Cl.³ H01J *61/56*

U.S. Cl. 315—58 9 Claims



1. A D.C. gaseous discharge display device with internal memory comprising in combination,

an ionizable gaseous medium in a gas chamber formed by a pair of glass plates,

a parallel cathode conductor array disposed on one of said glass plates,

a parallel anode conductor array disposed on the other of said pair of glass plates,

said first and second conductor arrays being disposed substantially orthogonal to each other,

the intersections of said cathode and anode conductors defining gas discharge cells,

a layer of resistive material overlying one of said conductor arrays to provide a uniform and stable resistance to and to limit the current through each of said cells during discharge of said gaseous discharge display device, and

a cermet layer overlying the other of said conductors arrays.

4,340,841

INTERNAL SHUNT FOR SERIES CONNECTED LAMPS

Lewis J. Schupp, Chesterland, Ohio, assignor to General Electric Company, Schenectady, N.Y.

Filed May 22, 1980, Ser. No. 152,425

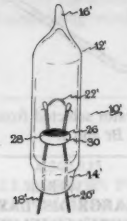
Int. Cl.³ H01J *7/44, 17/34, 19/78, 29/96*

U.S. Cl. 315—75 10 Claims

1. In an incandescent lamp having a light-transmitting envelope, a refractory metal filament connected between a pair of metal inleads and said inleads being spaced apart by an electrically insulative bead member, the improvement wherein a shunt material comprising an admixture of conductive metal particulates, an inorganic binder, and conductive non-metallic particulates exhibiting voltage breakdown behavior, is adhe-

sively bonded to said insulative bead member interconnecting and in physical contact with both spaced apart inleads, wherein the proportions in said admixture are maintained so that electrical conduction continues to take place between the metal particles after the breakdown voltage has been exceeded.

6. In an incandescent lamp having a light-transmitting glass envelope, a tungsten metal filament connected between a pair of metal inleads, said inleads being spaced apart by a glass bead member, and said lamp glass envelope being hermetically



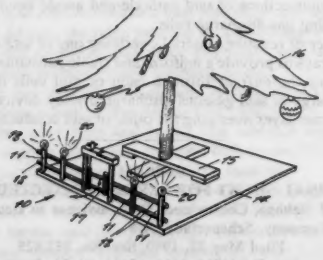
sealed to said inleads, the improvement wherein a shunt material comprising an admixture of conductive metal particulates, an inorganic binder, and conductive non-metallic particulates exhibiting voltage breakdown behavior is adhesively bonded to said glass bead member interconnecting and in physical contact with both spaced apart inleads wherein the proportions in said admixture are maintained so that electrical conduction continues to take place between the metal particles after the breakdown voltage has been exceeded.

4,340,842

CHRISTMAS TREE DECORATION

Paul M. King, c/o George Spector, 3615 Woolworth Bldg., 233 Broadway, and George Spector, 3615 Woolworth Bldg., 233 Broadway, both of New York, N.Y. 10007

Filed Jun. 11, 1981, Ser. No. 172,286
Int. Cl.³ A63H *33/26*
U.S. Cl. 315—186 **2 Claims**



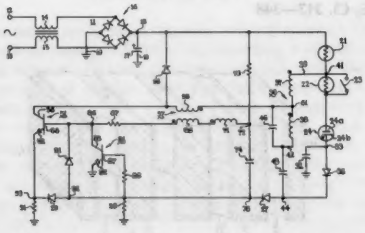
1. An electric lighted fence, comprising in combination, a miniature decorative display including a fence and a gate hinged on said fence, said fence being comprised of a plurality of fence posts and rails therebetween, a lamp on each said fence post, an electrical circuit to light up said lamps, and a mechanism to reciprocally swing said gate, said gate opening and closing a switch of said circuit.

4,340,843

KEEP-ALIVE CIRCUIT FOR GAS DISCHARGE LAMP

Thomas E. Anderson, South Euclid, Ohio, assignor to General Electric Company, Schenectady, N.Y.

Continuation of Ser. No. 29,320, Apr. 12, 1979, abandoned. This application Feb. 19, 1980, Ser. No. 122,400
Int. Cl.³ H05B *37/00, 39/00, 41/14*
U.S. Cl. 315—205 **9 Claims**



1. A keep-alive circuit for maintaining the arc in an operating arc lamp, comprising circuitry for generating a pulsating voltage, means to activate said circuitry whenever the arc current in said arc lamp reduces to a first given value below the normal range of operating values and greater than zero, means to apply said pulsating voltage to said arc lamp before the arc has time to extinguish, to maintain the arc and increase the arc current, and means to inactivate said circuitry when said arc current increases to a second given value, said second given value of arc current being greater than said first given value thereof.

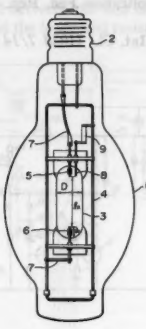
3. A circuit for starting and operating a gas-filled, high-pressure high-intensity type of arc lamp from an electric power source, comprising an oscillatory circuit for providing pulsating voltage, means for applying to said arc lamp a starting voltage derived from said oscillatory circuit for a time period until an operating arc is established in said lamp, means to inactivate said oscillatory circuit when said operating arc is established, means connected for ballasting said arc lamp for operation from said electric power source, and a keep-alive circuit for maintaining the arc in said lamp, said keep-alive circuit comprising means to activate said oscillatory circuit whenever the arc current in said lamp reduces to a first given value greater than zero and below the normal range of operating values and thus causing said starting voltage to be applied to said arc lamp before the arc has time to extinguish, to maintain the arc and increase the arc current, and means to inactivate said oscillatory circuit when said arc current increases to a second given value, said second given value of arc current being greater than said first given value thereof.

4,340,844

LIGHTING EQUIPMENT

Michihiro Tsuchihashi; Masato Saito; Keiichi Baba, and Yusaku Matsushima, all of Kamakura, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Mar. 12, 1979, Ser. No. 19,931
Claims priority, application Japan, Mar. 10, 1978, 53-28122
Int. Cl.³ H05B 41/16
U.S. Cl. 315—283 2 Claims



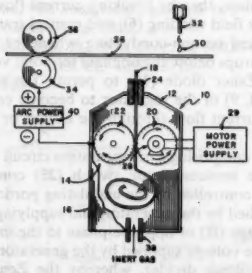
1. A lighting equipment which comprises a high pressure metal vapor discharge lamp having a rated operating lamp voltage of 145 to 180 V which is actuated by a lag type ballast supplied with a voltage of lower than 220 V.

4,340,845

STABILIZED CATHODE ASSEMBLY FOR ARC LIGHT SOURCE

Karl J. Hildebrand, Tyngsboro, and John Leeman, Andover, both of Mass., assignors to Leeman Labs, Inc., Tewksbury, Mass.

Filed Jul. 16, 1980, Ser. No. 169,288
Int. Cl.³ H01J 1/02
U.S. Cl. 315—327 12 Claims



1. In an arc light source comprised of an anode, a cathode, and a direct current power supply connected between said anode and said cathode, a stabilized cathode assembly comprising in combination:

a. a cathode comprising a length of electrically conducting braid consisting of a bundle of interwoven electrically conducting fibers, said braid having an unattached end transverse the longitudinal axis of said braid; and

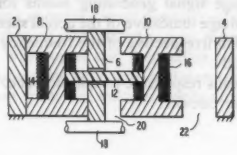
b. cathode support means arranged to position said unattached end of said braid in close proximity to said anode whereby an arc path is established between said end and said anode.

4,340,846

MAGNETIC APPARATUS FOR PRODUCING MOVEMENT

J. William Putt, 1162M S. Cedar Crest Blvd., Allentown, Pa. 18103

Continuation-in-part of Ser. No. 634,568, Nov. 24, 1975, abandoned, Ser. No. 758,227, Jan. 10, 1977, Pat. No. 4,121,139, and Ser. No. 951,710, Oct. 16, 1978, Pat. No. 4,249,115. This application Dec. 18, 1980, Ser. No. 217,928
Int. Cl.³ H02K 33/16
U.S. Cl. 318—135 11 Claims



1. Apparatus for producing movement, comprising,

a pair of paramagnetic members which are relatively movable in an axial direction from mutually distant positions to mutually proximate positions, said members being separated by a gap which has an axial thickness and which opens and closes as the members move relatively away from and toward each other,

electrical windings on one of said paramagnetic members, said windings when energized being operable to provide a magnetic field which pulls the paramagnetic members together and closes the gap between them,

means for energizing the windings by causing an electrical current to flow therethrough creating a magnetomotive force in the respective paramagnetic member, and

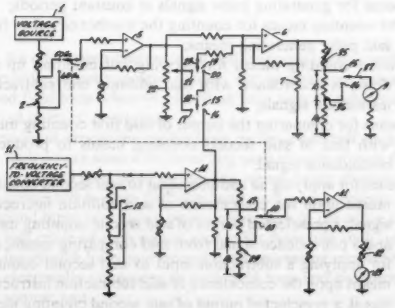
control means for gradually reducing said magnetomotive force while the gap is being closed by the field and the axial thickness thereof is decreasing, whereby electrical energy is conserved.

4,340,847

APPARATUS FOR SUPERVISING AND CONTROLLING THE OUTPUT POWER OF INDUCTION MOTORS

Kaichi Izumi, Tokyo, Japan, assignor to Kao Soap Company Limited, Tokyo, Japan

Filed Aug. 25, 1980, Ser. No. 180,634
Claims priority, application Japan, Sep. 7, 1979, 54/115007
Int. Cl.³ H02K 11/00
U.S. Cl. 318—490 11 Claims



1. An apparatus for supervising and/or controlling the output power of an induction motor comprising:

means for generating a first voltage signal (Ha) which varies with the actual speed of said motor in operation;

means for generating a second voltage signal (S) corresponding to the synchronous speed of said motor;

means for generating a third voltage signal (H) proportional to the speed of said motor at the rated maximum output;

circuit means for generating voltage signals proportional to S−H or S−Ha;

a first voltage divider circuit coupled to the output of said circuit means for changing the scale of said voltage proportional to S−Ha;

a second voltage divider circuit coupled to the output of said first voltage signal generating means for producing an output voltage indicative of the actual speed of said motor in operation irrespective of the frequency of said voltage source; and

indicator means responsive to said first and/or second voltage divider circuits.

4,340,848

APPARATUS FOR CONTROLLING THE PULSE PERIOD OF PULSES APPLIED TO A PULSE MOTOR

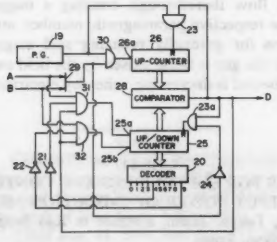
Takayoshi Hanagata, and Atsushi Noda, both of Yokohama, Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Aug. 21, 1980, Ser. No. 180,094

Claims priority, application Japan, Aug. 31, 1979, 54/111275

Int. Cl.³ G05B *13/00*

U.S. Cl. 318—561 **9 Claims**



1. Apparatus for controlling the pulse period of pulses applied to a pulse motor, comprising:

means for generating addition and subtraction instruction signals;

means for generating pulse signals at constant periods;

first counting means for counting the number of pulses from said pulse generating means;

second counting means for carrying out counting up and down is accordance with said addition and subtraction instruction signals;

means for comparing the output of said first counting means with that of said second counting means to produce a coincidence signal;

means for applying an addition input to said second counting means upon the coincidence of said addition instruction signal, a preselected output of said second counting means and a coincidence signal from said comparing means, and for applying a subtraction input to said second counting means upon the coincidence of said subtraction instruction signal, a preselected output of said second counting means and a coincidence signal from said comparing means; and

a pulse motor connected to receive the coincidence signals from said comparing means.

4,340,849

RIPPLE-COMPENSATED VOLTAGE REGULATOR, PARTICULARLY FOR AUTOMOTIVE USE

Edgar Kuhn, Gerlingen, Fed. Rep. of Germany, assignor to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

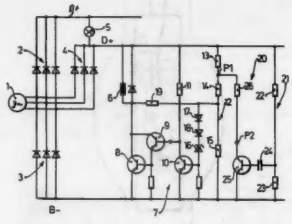
PCT No. PCT/EP79/00024, § 371 Date Dec. 4, 1979, § 102(e) Date Nov. 29, 1979, PCT Pub. No. WO79/00878, PCT Pub. Date Nov. 1, 1979

PCT Filed Mar. 27, 1979, Ser. No. 185,907

Claims priority, application Fed. Rep. of Germany, Apr. 4, 1978, 2814424

Int. Cl.³ H02J *7/14*

U.S. Cl. 322—28 **4 Claims**



1. Ripple-compensated voltage regulator circuit for connection to and in combination with an electrical generator, especially an AC generator, having a field winding, for the on-board electrical supply in motor vehicles, ships, and the like, having a main switching circuit including a semiconductor switch (**8, 9**) serially connected with the field or exciter winding (**6**) of the generator;

a control transistor (**10**) having its main switching path connected to the control terminal of the semiconductor switch, and to the output of the generator;

a voltage divider (**13, 14, 15**) connected across the output of the generator;

a Zener diode (**16**) connected to a junction of the voltage divider and to the base of the control transistor (**10**) to provide for conduction of the control transistor when the generator voltage exceeds the nominal or set-point voltage defined by the Zener diode (**16**) and thus switches the semiconductor switch (**8, 9**) of the regulator into non-conducting state, thereby blocking current flow through the exciter or field winding (**6**), said control transistor becoming blocked or non-conducting whenever the generator voltage drops below the nominal set-point voltage defined by the Zener diode (**16**) to permit the semiconductor switch (**8, 9**) of the regulator to become conductive and permit current flow through the exciter or field winding (**6**);

and further comprising a compensation circuit (**20**) including an active semiconductor switch (**25**) connected as an inverter, controlled by the undulating portion of the voltage supplied by the generator, and supplying a compensation voltage (II) of opposite phase to the undulating portion of the voltage supplied by the generator to a tap point of said voltage divider, whereby the Zener diode will receive a control voltage unaffected by generator ripple.

4,340,850

TEMPERATURE RESPONSIVE CONTROL CIRCUIT

Ronald A. Segars, Hopkinton, Mass., assignor to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Sep. 8, 1980, Ser. No. 184,867

Int. Cl.³ G05F *1/00*

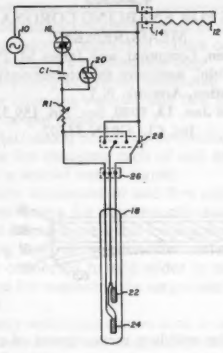
U.S. Cl. 323—218 **4 Claims**

1. A temperature responsive control comprising:

a gate current controlled solid state switch; means for connecting said solid state switch in series with a source of

alternating current and a load; and gate current control means for said solid state switch, said gate current control means including:

voltage sensitive switch means, said switch means being normally non-conductive and having first and second terminals, a first terminal of said switch means being connected to the gate of said solid state switch; capacitor means connected between the current source and the second terminal of said switch means; and resistance means connected between the said second terminal of said switch means and the load, said resistance means comprising a variable resistor; a first and second posistor; and switch means for selectively connecting said first and second posistors in series or in parallel and the selected series or parallel combination of posistors is connected in series with said variable resistor, said resistance means being at least in part voltage and temperature responsive whereby the rate at which said capacitor means charges will be a function of a monitored temperature and the source voltage, said switch means becoming conductive to supply gate current to said solid state switch when said capacitor means charges to a predetermined level.

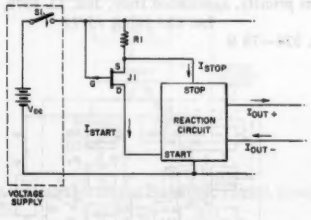


4,340,851

POWERLESS STARTING CIRCUIT

Yukio Nishikawa, San Jose, Calif., assignor to Precision Monolithics, Inc., Santa Clara, Calif.

Filed Jun. 18, 1980, Ser. No. 160,674
Int. Cl.³ G05F *3/16*
U.S. Cl. 323—311 **21 Claims**



1. An improved start-up circuit for a bias circuit connected to a supply voltage and having biasing currents independent of said voltage but stable at either zero or nonzero values when said supply voltage is nonzero, and also having sufficient regenerative feedback to raise the level of said biasing current to said nonzero stable value in response to only a slightly nonzero starting current injected into said bias circuit, said start up circuit comprising:

field effect transistor means, having gate means connected and source means coupled to said supply voltage and having drain means and said source means connected to said bias circuit, for injecting a starting current of small value relative to said nonzero value through said drain means into said bias circuit and for disconnecting said starting circuit from said bias circuit;

resistor means, connected between said supply voltage and said source means, providing a path from said supply voltage to said bias circuit for a current related to said biasing current level; and

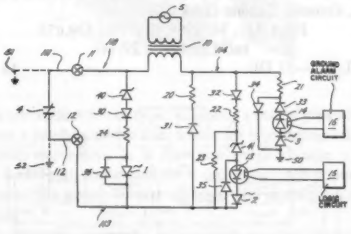
said field effect transistor means being responsive to said related current whereby said injection of starting current into said bias circuit causes said feedback to raise said level of said biasing currents to said nonzero value and thereby initiate the flow of said related current through said resistor means, whereupon said field effect transistor means effects said disconnection, with said start-up circuit drawing no power from said voltage supply after said disconnection.

4,340,852

SCANNING SYSTEM USING ALTERNATING CURRENT FOR INDICATING THE OPEN, CLOSED AND GROUND CONDITION OF A CONTACT

Mauro G. Togneri, P.O. Box 12818, Houston, Tex. 77017

Filed Aug. 9, 1979, Ser. No. 65,370
Int. Cl.³ G01R *31/02*
U.S. Cl. 324—51 **8 Claims**



1. An alternating-current input and scanning system, with an alternative polarity power source, for scanning an open or closed field loop wherein such field loop may be subject to a ground contact, comprising:

first input processing means responsive to one-half cycle of such power source for detecting such closure of such field loop, said first input processing means being electrically connected to such field loop and such power source;

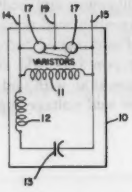
second input processing means responsive to the other one-half cycle of such power source for detecting such opening of such loop, said second input processing means being electrically connected to such field loop and such power source; and

ground control processing means responsive to such power source and such ground contact for producing an alternating polarity ground signal indicating the status of such ground contact within such field loop.

4,340,853
METHOD OF TESTING THE WINDINGS AND INSULATION SYSTEM OF A MOTOR BY APPLYING THE TEST VOLTAGE BEFORE COMPLETING A PATH TO GROUND

John L. Braun, Ashland; Denver W. Smith, Bedford, and William J. Ekey, Ashland, all of Ohio, assignors to McNeil Corporation, Akron, Ohio

Filed Oct. 17, 1979, Ser. No. 85,765
Int. Cl.[3] G01R *31/06, 31/12;* H02K *15/00;* H02H *7/09*
U.S. Cl. 324—51 4 Claims

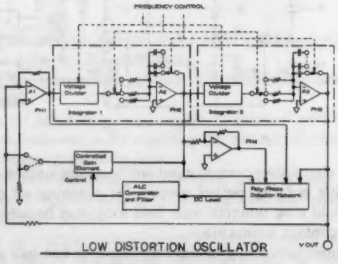


1. A method of testing the windings and insulation system of an electrical surge protected motor having a submersible housing in electrical contact with ground comprising the steps of assembling the motor in the housing without providing an electrically conductive path from the motor windings through the housing to ground, subjecting the windings and insulation system of the motor to a voltage greater than the voltage magnitude at which the motor is to be protected in order to test for weaknesses in the insulation system, and testing for the absence of a short circuit between the windings and the housing, and in the event of an absence of a short circuit between the windings and the housing thereafter completing a voltage sensitive electrical conductive path from the motor windings through the housing to ground.

4,340,854
DISTORTION MEASUREMENT SYSTEM

Wayne W. Jones, 100 Francois St., Apt. 613, Nuns' Island, Quebec, Canada (H3E 1E2), and Roger Stone, R.R. #1, Stittsville, Ontario, Canada (K0A 3G0)

Filed Apr. 14, 1980, Ser. No. 139,673
Int. Cl.[3] G01R *27/00*
U.S. Cl. 324—57 DE 16 Claims



1. A distortion measurement system for measuring distortion of a signal passed through a device under test, said device comprising input means for receiving said signal and output means for providing said signal as an output, said signal comprising a fundamental frequency and remaining frequencies;

said system further comprising:

fundamental frequency rejection filter means having an input for receiving said signal provided by said device, and for rejecting said fundamental frequency and for passing said remaining frequencies of said signal, said fundamental frequency rejection filter means comprising a state variable circuit connected as a filter, the output means of said device under test being connected to the input of said fundamental frequency rejection filter means, said fundamental frequency rejection filter means having an output; and

comparing means for comparing the amplitude of a signal at the input of the fundamental frequency rejection filter means to the amplitude of a corresponding signal at the output thereof for determining distortion of said device.

4,340,855
APPARATUS FOR ENABLING CORONA CURRENT MEASUREMENT

Kenneth E. Paysen, Longmont, and James M. Petrovick, Boulder, both of Colo., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Jun. 13, 1980, Ser. No. 159,323
Int. Cl.[3] G01N *31/02*
U.S. Cl. 324—72 16 Claims

1. Apparatus for enabling measurement of corona current which flows to the photoconductor assembly of an electrophotographic device comprising:

an electrically conductive planar collection element to be positioned on the photoconductor assembly adjacent the corona;

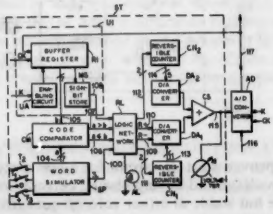
electrically insulative planar support means for supporting said planar collection element and coextensive therewith; and

an adhesive, nonresidue material affixed to said planar support means on the side opposite said planar collection element, for releasably holding said support means, and thereby said planar collection element, in position on said photoconductor assembly.

4,340,856
APPARATUS FOR TESTING AN ANALOG/DIGITAL CONVERTER

Giorgio Orlandi, Milan, Italy, assignor to Societa Italiana Telecomunicazioni Siemens S.p.A., Milan, Italy

Filed Jun. 11, 1980, Ser. No. 158,510
Claims priority, application Italy, Jun. 12, 1979, 23478 A/79
Int. Cl.[3] G01R *15/12*
U.S. Cl. 324—73 R 6 Claims



1. An apparatus for testing an analog/digital converter, comprising:

storage means connectable to a digital output of an analog/digital converter to be tested, said storage means being provided with (n − 1) stages for amplitude bits and with an

additional stage for a sign bit of an n-bit code word emitted by the converter under test;

a word simulator operable to generate a variety of test codes of (n−1) bits;

a comparator with a first plurality of inputs connected to said word simulator and with a second plurality of inputs connected to said (n−1) stages for respectively receiving therefrom a first and a second bit combination and for alternatively producting two discriminating signals depending upon the relative numerical values of said bit combinations;

a reversible primary counter adapted to read out progressively higher first numerical values corresponding to whole quantization steps of the converter under test;

a reversible secondary counter adapted to read out progressively lower second numerical values corresponding to aliquot fractions of a quantization step;

a first digital/analog converter connected to said primary counter for changing each of said first numerical values into a first output signal;

a second digital/analog converter connected to said secondary counter for changing each of said second numerical values into a second output signal;

an analog adder connected to said first and second digital-/analog converters for algebraically summing said first and second output signals and feeding the resulting signal to an analog input of the converter under test;

meter means connected to said adder in parallel with said analog input for measuring the magnitude of said resulting signal; and

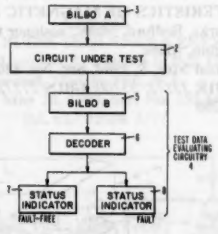
logical circuitry with input connections to said word simulator, said comparator and said additional stage and with output connections to said counters for stepping said counters, upon receiving a start signal from said word simulator, in response to changes of said sign bit during an offset check and in response to switchovers between said discriminating signals during a calibration check.

4,340,857

DEVICE FOR TESTING DIGITAL CIRCUITS USING BUILT-IN LOGIC BLOCK OBSERVERS (BILBO'S)

Patrick P. Fasang, Mount Laurel, N.J., assignor to Siemens Corporation, Iselin, N.J.

Continuation of Ser. No. 139,207, Apr. 11, 1980, abandoned.
This application Jun. 26, 1981, Ser. No. 277,992
Int. Cl.³ G01R *15/12*
U.S. Cl. 324—73 R **16 Claims**



1. A device for testing a digital electronic circuit, comprising in combination:

(a) first BILBO means for generating a pseudo-random test pattern, said first BILBO means being connected to inputs of said circuit under test and having a serially connected chain of storage elements and input modifying means connecting the output of at least one storage element to the input of another;

(b) second BILBO means for analyzing a parallel-input signature, said second BILBO means being connected to outputs of said circuit under test and having a serially connected chain of storage elements and input modifying means connecting the output of at least one storage element to the input of another;

(c) a decoder having:

(ca) inputs connected to outputs of said second BILBO means for receiving input signals having a predetermined combination of logic levels when said circuit under test is fault-free and having a combination of logic levels different from the predetermined combination when the circuit under test is faulty; and

(cb) an output for delivering a first output signal when said circuit under test is fault-free and for delivering a second output signal when said circuit under test is faulty;

(d) at least one status indicator connected to the output of said decoder for indicating the status of said circuit under test; and

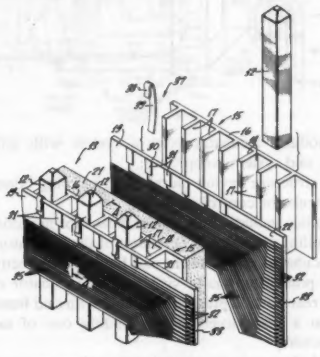
(e) means for controlling said first and second BILBO means and said decoder in dependence on a master clock signal.

4,340,858

TEST FIXTURE

James T. Malloy, Huntington Beach, Calif., assignor to Philip M. Hinderstein, Irvine, Calif.

Filed Aug. 13, 1979, Ser. No. 66,093
Int. Cl.³ G01R *1/06, 31/02*
U.S. Cl. 324—158 P **27 Claims**



9. In a test fixture of the type including a bed of pins adapted to contact a product under test, means for supporting said pins for slidable movement in a direction perpendicular to said product under test, and means for making electrical connection to said pins, the improvement wherein said supporting means comprises:

a first elongate, generally rectangular member including a wall and a series of parallel, spaced partitions extending perpendicularly from one side of said wall so as to define a series of parallel, spaced channels which extend perpendicular to the longitudinal dimension of said wall;

a second elongate, generally rectangular member positionable parallel to said first member, adjacent the free ends of said partitions;

a plurality of pins, individual ones of said pins being positioned in individual ones of said channels, between said wall of said first member and said second member, the ends of said pins adapted to contact said product extending externally of said channels, beyond the longitudinal side edges of said first and second members, said second member including a pattern of conductive leads for conducting electrical signals to said pins; and

means for applying a longitudinal spring force to each of said pins to urge said pins in the direction of said ends thereof

which contact said product; and wherein said means for making electrical connection to said pins comprises:

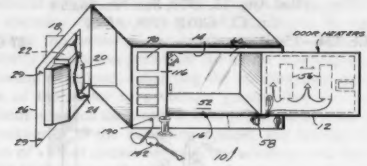
a series of parallel, spaced contacts connected to said second member, along said longitudinal side edge thereof, the spacing between said contacts being the same as the spacing between said channels whereby a contact is aligned with each of said channels, each of said contacts being electrically connected to a different one of said conductive leads and being positioned to contact a different one of said pins for completing an electrical circuit therebetween.

4,340,859

MODULAR INCUBATOR CONTROL SYSTEM WITH SELF-TEST CAPABILITY

Max F. Farley, Marietta, Ohio, assignor to Mallinckrodt, Inc., St. Louis, Mo.

Filed Apr. 18, 1980, Ser. No. 141,275
Int. Cl.[3] G01R *31/02;* C12M *1/38*
U.S. Cl. 324—158 R **6 Claims**



1. A modular incubator control system with self-testing capability, said system comprising:

a frame structure having plural electrical plug connectors;

plural incubator control modules;

each module including electronic means for monitoring and controlling at least one condition of the incubator's internal incubated environment and having a respective front panel portion normally visible to an incubator operator and a rear portion plug-connectable with said frame structure at a respectively corresponding one of said plug connectors;

each said electronic means including voltage measuring and indicating means having an input for measuring the magnitude of a voltage and for visually displaying a numerical representation of that voltage at the front panel portion of its respective module;

each said electronic means having electronic circuits and also including multiposition test switch means disposed behind said front panel in a position that is not normally accessible to an operator and connected to selectively connect the input of its respective voltage measuring and indicating means to a selected one of plural predetermined points within its electronic circuits, each said multiposition test switch means having a normal position in which its respective module operates normally to monitor and visually display the value of its respective environmental condition and having plural test positions in each of which the module displays, for diagnostic test purposes, a representation of the electrical voltage at a corresponding predetermined position within its electrical circuits; and

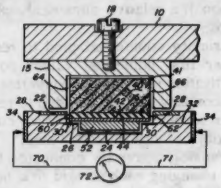
circuit extension means selectively connectable between any of said plug connectors and its associated control module for physically positioning the module to permit ready operator access to said multiposition test switch means while still leaving the module fully operable through electrical connection with its respective plug connector when it is desired to perform diagnostic tests.

4,340,860

INTEGRATED CIRCUIT CARRIER PACKAGE TEST PROBE

Lawrence R. Teeple, Jr., Palo Alto, Calif., assignor to Trigon, Mountain View, Calif.

Filed May 19, 1980, Ser. No. 151,128
Int. Cl.[3] G01R *31/02*
U.S. Cl. 324—158 F **9 Claims**



1. A test probe for facilitating the conductor continuity testing of integrated circuit carrier packages of the type having a cavity for receiving an integrated circuit chip and having conductors extending between exterior contact points disposed along the outside edges of the package and interior contact points disposed within said cavity, comprising:

test probe head means including;

an elastomeric member having at least a portion shaped to matingly penetrate into the chip receiving cavity of said integrated circuit carrier package, the distal surface of said portion forming an outer face; and

a thin metal foil plate means configured to be approximately co-extensive in size with said outer face and joined thereto, said foil plate means being formed to make simultaneous electrical contact with each interior contact point located within said chip receiving cavity; and

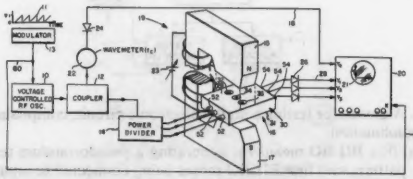
means for carrying said probe head means so as to position said elastomeric member in aligned relation to and in mating engagement with said chip receiving cavity whereby said foil plate means simultaneously engages and shorts all of said interior contact points together so that continuity testing of each said conductor can be accomplished by contacting pairs of said exterior contact points with a continuity tester.

4,340,861

METHOD OF MEASURING MAGNETIC FIELD CHARACTERISTICS OF MAGNETIC MATERIALS

Richard A. Sparks, Bedford, Mass., assignor to Raytheon Company, Lexington, Mass.

Filed Mar. 3, 1980, Ser. No. 126,260
Int. Cl.[3] G01R *33/12, 35/00;* G01N *27/72;* G01R *33/02*
U.S. Cl. 324—205 **8 Claims**



1. A method of measuring a magnetic field comprising the steps of:

(a) passing a magnetic field of a calibrating magnet through a cavity in an apparatus having disposed therein a material adapted to produce ferromagnetic resonance;

(b) coupling radio frequency energy into said cavity;

(c) positioning said material within said cavity to produce a

first output signal having a frequency related to the magnetic field of the calibrating magnet passing into the cavity and through said material;

(d) passing a second magnetic field to be measured into the cavity and through the positioned material;

(e) coupling radio frequency energy into said cavity to generate a second output signal; and

(f) comparing the frequency of the first output signal with the frequency of the second output signal to provide a measure of the second magnetic field.

4,340,862
IMAGING SYSTEMS

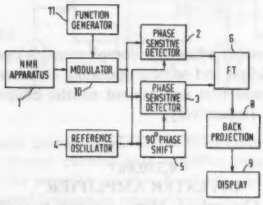
William S. Percival, London, and Peter E. Walters, Southall, both of England, assignors to Picker International Limited, Wembley, England

Filed Dec. 10, 1979, Ser. No. 102,113

Claims priority, application United Kingdom, Dec. 13, 1978, 48214/78

Int. Cl.³ G01N *27/00*

U.S. Cl. 324—309 **10 Claims**



1. A circuit for processing a nuclear magnetic resonance signal to provide an output signal which is substantially the convolution of the Fourier transform of the resonance signal, with a predetermined convolution function, the circuit including function generating means providing a modulation function which is substantially the inverse Fourier Transform of the predetermined convolution function, means for modulating the resonance signal with said modulating function and means for Fourier transforming the modulated signal to provide the output signal.

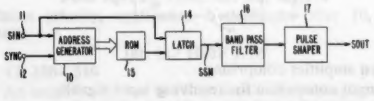
4,340,863
SMOOTH PULSE SEQUENCE GENERATOR

Dominick Scordo, Union, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed May 23, 1980, Ser. No. 152,647

Int. Cl.³ H03K *5/13*

U.S. Cl. 328—63 **8 Claims**



1. A pulse sequence generator of the type capable of dividing a reference signal having a uniform pulse sequence by a predetermined rational fraction to produce a smooth pulse sequence, characterized by,

means responsive to the reference signal for generating a sequence of address signals, and

memory means having predetermined digital representation stored in predetermined ones of a plurality of memory locations defining pulse transitions of said smooth pulse sequence which when read-out in response to said sequence of address signals form said smooth pulse sequence.

4,340,864
FREQUENCY CONTROL SYSTEM

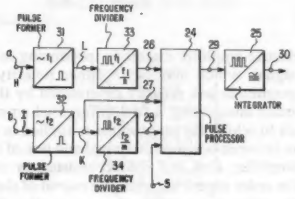
Christopher W. Malinowski, Untereisesheim, and Heinz Rinderle, Heilbronn, both of Fed. Rep. of Germany, assignors to Licentia Patent-Verwaltungs G.m.b.H., Frankfurt am Main, Fed. Rep. of Germany

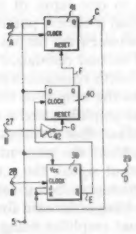
Continuation of Ser. No. 957,006, Nov. 2, 1978, abandoned. This application Dec. 17, 1980, Ser. No. 217,404

Claims priority, application Fed. Rep. of Germany, Oct. 16, 1978, 2844936; Oct. 16, 1978, 2844938; Oct. 16, 1978, 2844939; Oct. 16, 1978, 2845005; Oct. 16, 1978, 2845006

Int. Cl.³ H03D *13/00*; H03L *7/00*

U.S. Cl. 328—133 **1 Claim**





1. A circuit for producing a frequency dependent output signal in response to two a.c. input signals comprising: converter means connected to receive the two a.c. input signals for furnishing an output signal having a steady state d.c. component which varies in dependence on changes in the value of a relationship between the frequencies of the two a.c. input signals, which relationship covers a range containing unequal frequency values for the two input signals; and means connected to said converter means for producing an a.c. output signal whose frequency is a function of the value of such d.c. component, wherein said converter means comprises a pulse processor producing an output signal from two input pulse signals constituting the a.c. input signals, said pulse processor including means producing an output signal in the form of a pulse train the repetition frequency of which is proportional to the frequency of one a.c. input pulse signal and the duration of each pulse of which is inversely proportional to the frequency of the other input pulse signal, and integrating means connected to generate from the output signal in the form of a pulse train a signal corresponding to the time integral thereof and constituting the steady state d.c. component of said converter means output signal.

4,340,865
ELECTRIC AMPLIFIER CIRCUITS THAT RESPOND TO AN INPUT SIGNAL OF EITHER POLARITY TO PRODUCE AN OUTPUT SIGNAL HAVING A POLARITY CORRESPONDING TO THAT OF THE INPUT SIGNAL

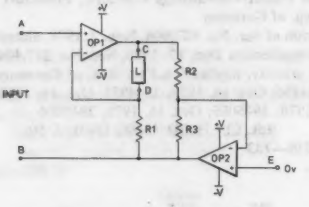
Peter Woodhead, Stafford, England, assignor to The General Electric Company Limited, London, England

Filed Feb. 4, 1980, Ser. No. 118,577

Claims priority, application United Kingdom, Feb. 13, 1979, 7905104

Int. Cl.³ H03F *3/45, 1/34*

U.S. Cl. 330—69 **6 Claims**



1. An electric amplifier circuit for producing in response to an input signal, which may be of either polarity, an output signal of magnitude and polarity determined by the input signal, the circuit comprising: a first differential amplifier; a pair of terminals to which the input signal is applied in operation; a connection between one input terminal and one of the inputs of the first amplifier; first and second resistances connected in series, in the order stated, between the output of the first amplifier and the other input terminal; a connection between the junction of said first and second resistances and the other input of the first amplifier; a second differential amplifier; a further terminal connected to one input of the second amplifier, to which further terminal a datum potential is applied in operation; a connection between the output of the second amplifier and the end of said second resistance nearer said other input terminal; third and fourth resistances connected in series in the order stated between the output of the first amplifier and the output of the second amplifier; and a connection between the junction of said third and fourth resistances and the other input of said second amplifier; the current in said first resistance constituting said output signal, the ratio of the values of said third and fourth resistances being substantially equal to the ratio of the supply voltages for said first and second amplifiers respectively, each said amplifier being supplied from between lines maintained at substantially equal and opposite potentials with respect to said datum potential, and the input signal being isolated from said supply voltages for the amplifiers.

4,340,866
THERMALLY-COMPENSATED VARIABLE GAIN DIFFERENTIAL AMPLIFIER

Arthur J. Metz, Gervais, Oreg., assignor to Tektronix, Inc., Beaverton, Oreg.

Filed Sep. 17, 1979, Ser. No. 75,779

Int. Cl.³ H03F *3/45*

U.S. Cl. 330—254 **4 Claims**

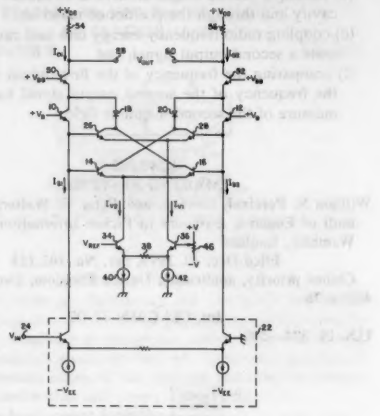
1. A thermal-compensated variable-gain differential amplifier, comprising:

a pair of common-base amplifier input transistors for receiving input currents at the emitters thereof;

a first emitter-coupled pair of transistors connected between the emitters of said pair of input transistors, the collectors of said first emitter-coupled pair of transistors being cross-coupled to the collectors of said input transistors;

a second emitter-coupled pair of transistors connected between the emitters of said pair of input transistors, the collectors of said second emitter-coupled pair of transistors being coupled to the cross-coupled collectors of said first emitter-coupled pair of transistors and to the collectors of said pair of input transistors; and

differential current generator means for providing first and



second variably adjustable complementary operating currents, said first and second operating currents being provided to said first and second emitter-coupled pairs of transistors respectively.

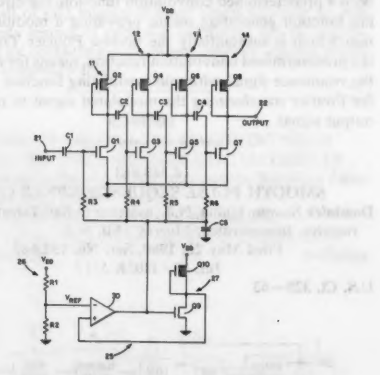
4,340,867
INVERTER AMPLIFIER

Jun-ichi Sano, Chelmsford, Mass., assignor to GTE Laboratories Incorporated, Waltham, Mass.

Filed Nov. 5, 1980, Ser. No. 204,092

Int. Cl.³ H03F *3/16*

U.S. Cl. 330—277 **18 Claims**



1. An amplifier comprising

an input connection for receiving input signals;

an amplifier field effect transistor having a first conduction path electrode coupled to a source of operating potential and a second conduction path electrode connected to a point of fixed potential;

the input connection being coupled to the gate of the amplifier field effect transistor;

an output connection coupled to the first conduction path electrode of the amplifier field effect transistor;

DC bias generating means for establishing a DC bias at the amplifier input including

a reference field effect transistor having a first conduction

path electrode coupled to said source of operating potential and a second conduction path electrode connected to said point of fixed potential,

an operational amplifier having a first input connected to the first conduction path electrode of the reference field effect transistor,

a source of reference potential for producing a reference voltage connected to the second input of said operational amplifier,

the output of the operational amplifier being coupled to the gate of the reference field effect transistor and to the gate of the amplifier field effect transistor.

4,340,868

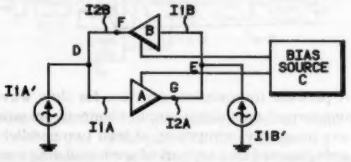
CURRENT MODE BIQUADRATIC ACTIVE FILTER

Gary L. Pace, Ft. Lauderdale, Fla., assignor to Motorola, Inc., Schaumburg, Ill.

Filed May 12, 1980, Ser. No. 148,850

Int. Cl.³ H03F *1/34*

U.S. Cl. 330—294 **18 Claims**



1. A tunable current mode active filter comprising:

first and second current gain amplifier means coupled together for negative current feedback and including first and second transistors respectively;

a bias voltage source coupled to control the operating voltage of the filter;

a bias current source coupled to control the DC emitter currents of at least one of the transistors;

a first capacitor coupled between the collector of the first transistor and ground;

a second capacitor coupled between the collector of the second transistor and ground;

input means coupled to the amplifier means for receiving an input current;

first output means coupled to the amplifier means for providing a first output current having a first filter characteristic; and

second output means coupled to the amplifier means for providing a second output current having a second filter characteristic.

4,340,869

AMPLIFIER FOR USE IN A LINE CIRCUIT

Job F. P. Van Mil, Eindhoven, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.

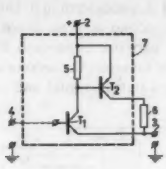
Filed Apr. 21, 1980, Ser. No. 142,274

Claims priority, application Netherlands, May 10, 1979, 7903663

Int. Cl.³ H03F *1/08*

U.S. Cl. 330—310 **5 Claims**

1. An amplifier for use in a line circuit comprising an output impedance, an output transistor, a d.c. voltage source, said voltage source being coupled for direct current to a subscriber line connecting terminal of said amplifier by means of a main current path of said output transistor for applying by means of said output impedance a direct current and an alternating current superimposed on said direct current to a load such as a wire of said subscriber's line connected to said connecting terminal, a first resistor which is arranged in series with said main current path of said output transistor between said voltage source and an output terminal that is coupled to said subscriber line connecting terminal, and a second transistor which has its base-emitter junction connected across said first resistor and coupled to said connecting terminal of the amplifier by



means of the series arrangement of said main current path of said second transistor and said impedance.

4,340,870

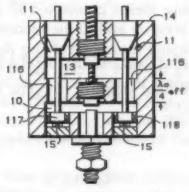
EFFICIENT HIGHER ORDER MODE RESONANT COMBINER

Michael Dydyk, Scottsdale, Ariz., assignor to Motorola, Inc., Schaumburg, Ill.

Filed Jul. 28, 1980, Ser. No. 172,587

Int. Cl.³ H03B *7/14, 9/14*

U.S. Cl. 331—56 **22 Claims**



1. In a higher order mode resonance combiner comprising a first higher order mode resonant cavity; an input circuit terminated in a stabilizing load of value Z_o; input coupling means for coupling energy from said input circuit to said first resonant cavity; and output coupling means for extracting energy from said first cavity, the improvement comprising:

first means for reducing the real part, R_{in}, of the input impedance, Z_{in}, of said higher order mode resonance combiner; and

second means for further reducing said R_{in} to a value less than Z_o such that at a selected modal resonant frequency, f_o, R_{in} shall be minimized.

4,340,871

LOW POWER OSCILLATOR HAVING CLAMPING TRANSISTORS ACROSS ITS TIMING CAPACITORS

Jeffrey R. Teza, Houston, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.

Filed Sep. 14, 1979, Ser. No. 75,567

Int. Cl.³ H03K *3/354*

U.S. Cl. 331—111 **8 Claims**

1. An oscillator for providing first and second, substantially complementary output signals, the oscillator comprising:

a first inverter providing the first output signal a first predetermined time period after receiving a first inverter drive signal;

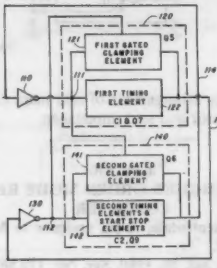
a first delay network connected to the first inverter, the first delay network receiving the first output signal and providing a second inverter drive signal a predetermined second time period after receiving the first output signal;

first clamping means connected to the first inverter and to the first delay network, and first clamping means receiving the second output signal and clamping the second inverter drive signal to the level of the first output signal in response to receiving the second output signal;

a second inverter connected to the first delay network and to the first clamping means, the second inverter receiving the second inverter drive signal and providing the second output signal a predetermined third time period after receiving the second inverter drive signal;

a second delay network connected to the second inverter and to the first inverter, the second delay network receiving the second output signal and providing the first inverter drive signal a predetermined fourth time period after receiving the second output signal; and

second clamping means connected to the first inverter, to the second inverter and to the second delay network; the second clamping means receiving the first output signal and clamping the first inverter drive signal to the level of the second output signal in response to receiving the first output signal.

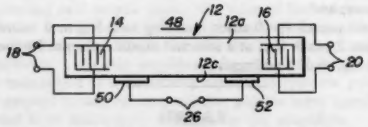


4,340,872

CONTINUOUSLY VARIABLE PIEZOELECTRIC CRYSTAL DELAY LINE

Larry D. Alter, Treasure Island, Fla., assignor to E-Systems, Inc., Dallas, Tex.

Filed Nov. 26, 1980, Ser. No. 210,630
Int. Cl.³ H03H *9/42, 9/68, 9/38*
U.S. Cl. 333—152 **2 Claims**



1. A continuously variable time delay comprising: a piezoelectric crystal, an input transducer mounted on a surface of said crystal and connected to receive an input signal for generating surface acoustic waves therefrom, said waved transmitted along the surface of said crystal, an output transducer mounted on said surface offset from said input transducer to receive said surface acoustic waves, and

an output transducer mounted on said surface offset from said input transducer to receive said surface offset from said input transducer to receive said surface acoustic waves, and

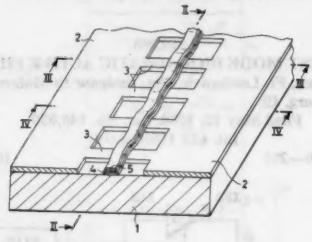
control electrodes mounted on a surface of said crystal opposite the surface having said transducers mounted thereon said control electrodes connected to receive a control signal which applies a field to said crystal to alter the spacing between said transducers due to piezoelectric expansion of said crystal and thereby control the transit time between said transducers.

4,340,873

PERIODIC TRANSMISSION STRUCTURE FOR SLOW WAVE SIGNALS, FOR MINIATURIZED MONOLITHIC CIRCUIT ELEMENTS OPERATING AT MICROWAVE FREQUENCY

Ezio M. Bastida, Segrate, Italy, assignor to CISE Centro Informazioni Studi Esperienze S.p.A., Italy

Filed May 30, 1980, Ser. No. 154,683
Claims priority, application Italy, Jun. 28, 1979, 23949 A/79
Int. Cl.³ H01P *9/00*
U.S. Cl. 333—161 **6 Claims**



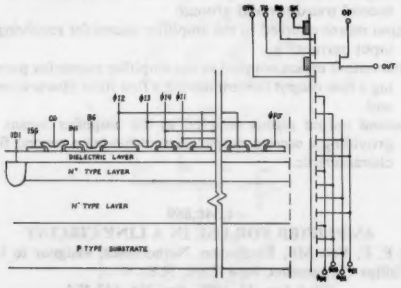
1. A periodic transmission structure for slow wave signals, for miniaturised monolithic circuit elements operating at microwave frequency, comprising at least two parallel conducting bands disposed on a support of semi-insulating semiconductor materials and electrically interconnected by concentrated capacities at predetermined distances apart which are less than the wavelength of the signal to be transmitted.

4,340,874

TRANSIENT DATA RECORDER SYSTEMS

Thomas E. Linnenbrink, Winnetka, and David A. Gradl, Des Plaines, both of Ill., assignors to Q-Dot, Inc., Des Plaines, Ill.

Filed May 31, 1979, Ser. No. 44,078
Int. Cl.³ H01P *9/00;* **G11C** *19/28;* **H01L** *29/78;* **H03H** *15/02*
U.S. Cl. 333—165 **2 Claims**



1. In apparatus of the CCD type for sampling an analog signal to provide charge samples representative of analog signal voltage, comprising

means for defining a semiconductive charge transfer channel in monocrystalline semiconductive body,

input diffusion means for inputing charge to said channel,

a signal gate electrode overlying said channel for receiving the analog signal to be sampled,

a cutter gate electrode overlying said channel and positioned between said signal gate electrode and said input diffusion means for periodically isolating signal charge in the transfer channel beneath said signal gate electrode,

a plurality of bussed multiphase transfer electrodes overlying said transfer channel for transferring discrete charge samples along said channel, and

means for outputting said charge samples, the improvement comprising

a buffer gate electrode overlying said transfer channel and positioned between said signal gate electrode and said bussed multiphase transport electrodes, said buffer gate having effective capacitance to said semiconductive body of less than about 5 percent of the effective capacitance to said semiconductor body of each of said bussed multiphase transfer electrodes.

4,340,875

TRANSVERSAL FILTER

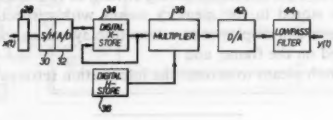
Kevin S. English, Ferntree Gully, Australia, assignor to Australian Telecommunications Commission, Melbourne, Australia

Filed Jan. 4, 1980, Ser. No. 109,589

Claims priority, application Australia, Jan. 4, 1979, PD7273

Int. Cl.³ H03H *17/02, 15/00*

U.S. Cl. 333—166 **11 Claims**



1. A transversal filter for generating, from an input signal x(t), a filtered output signal y(t); the filter comprising

(a) Sampling means for sampling the input signal at consecutive equi time-spaced intervals T to produce the sequence of consecutive samples $x_n(n = \ldots, 0, 1, 2, 3, \ldots)$;

(b) first storing means for storing consecutive sets of said samples, each such set, $S_i(i = -\infty, \ldots 0, \ldots \infty)$ comprising the N samples $x_{i-k}(k = 0, 1, \ldots, N-1)$;

(c) second storing means for storing N coefficients $h_k(k = 0, 1 \ldots, N-1)$ together representing a linear filter impulse response;

(d) generating means for generating from each said set of stored samples, and from the impulse response coefficients stored in said second storing means, the products $h_k \cdot x_{i-k}$ and for presenting these as product signals at an output from the generating means; and

(e) a lowpass filter connected to receive the said product signals and to generate the said output signal by lowpass filtering the product signals whereby the said input and output signals are related substantially by the following convolution relationship:

$$Y(t) = \phi_{\frac{T}{N}}(t) * \sum_{i=0}^{N-1} h_i x(t - i \cdot T')$$

where $\phi_{\frac{T}{N}}(t) = 1, 0 < t < \frac{T}{N}$

$= 0$, otherwise;

and T' is a time interval not equal to T.

4,340,876

MAGNETIC ARMATURE MOUNTING IN PARTICULAR FOR MINICOMPACT RELAYS

Wolfgang Dammert, Ludwigstrasse 46; Horst Enge, Friedrichstrasse 27, both of D 8672 Selb, Fed. Rep. of Germany, and Jacques Dufour, La Fouiniere Saint Sauveur, F 86100 Chatellerault, France

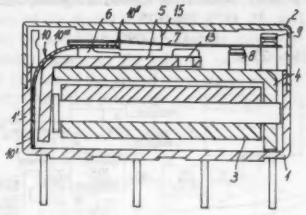
Filed Apr. 16, 1980, Ser. No. 140,873

Claims priority, application Fed. Rep. of Germany, Apr. 18, 1979, 2915661; Nov. 21, 1979, 2946881

Int. Cl.³ H01F *7/14*

U.S. Cl. 335—276 **9 Claims**

1. Magnetic armature mounting, in particular for minicompact relays having a housing encasing a magnetic coil, a magnetic yoke, a magnetic armature and a contact spring and wherein the magnetic armature is generally L-shaped and is held with its inside angle tiltably positioned against an edge of the yoke, the improvement comprising: a bent, flat spring strip



in said housing, said spring strip abutting under at one end against one of the walls of the housing, and at another end against means in said housing, and with the concave side of its bent apex bearing against the magnetic armature opposite said inside angle to thereby hold said armature tiltably against said yoke without applying torque thereto.

4,340,877

HALL GENERATOR PRESSURE TRANSDUCER

Werner Herden, Stuttgart, Fed. Rep. of Germany, assignor to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

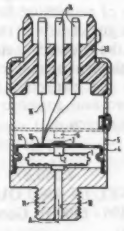
Filed Oct. 27, 1980, Ser. No. 200,764

Claims priority, application Fed. Rep. of Germany, Nov. 17, 1979, 2945515

The portion of the term of this patent subsequent to Mar. 3, 1998, has been disclaimed.

Int. Cl.³ H01L *10/10*

U.S. Cl. 338—42 **7 Claims**



1. A pressure transducer producing an electrical signal representing pressure and capable of service in the intake air duct of an internal combustion engine, comprising a membrane or aneroid capsule constituted and held so that its center moves in dependence upon pressure applied thereto, a permanent magnet and a Hall generator provided in an integrated circuit so disposed that the movement of the center of said membrane varies the spacing between said permanent magnet and said Hall generator integrated circuit and, further, comprising the improvement that consists in that:

said Hall generator and said permanent magnet (2) are coaxially disposed; and

the Hall generator integrated circuit (3) exhibits linear relation between its output voltage (U_a) and the magnetic induction (B) to which it is subject over a range of variation of said spacing between said Hall generator and said permanent magnet, produced by movement of said membrane center.

4,340,878
VISUAL DISPLAY APPARATUS

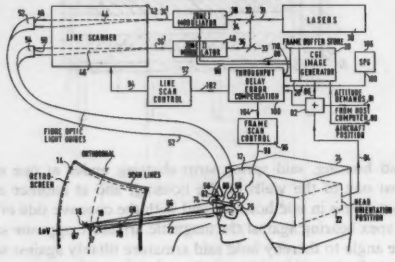
Archer M. Spooner, Orlando, Fla., and Paul M. Murray, Tunbridge Wells, England, assignors to Redifon Simulation Limited, Crawley, England

Filed Jan. 11, 1980, Ser. No. 111,285

Claims priority, application United Kingdom, Jan. 11, 1979, 7901011; Dec. 31, 1979, 7944629

Int. Cl.³ G09G *3/02*

U.S. Cl. 340—27 R **8 Claims**



1. Head-coupled, area-of-interest, visual display apparatus providing a displayed scene comprising two zones, including a part-spherical retro-reflective concave screen of area greater than a viewer's instantaneous field of view, a helmet, sensing means for sensing the orientation of the viewer's head and helmet, visual image generating means for generating a simulated scene in the direction of the viewer's instantaneous line of view according to the viewer's simulated position and orientation and under control of the said sensing means, the said image generating means being adapted for providing two visual images corresponding respectively to the two zones of the displayed scene, a laser beam source for producing a laser beam, separate laser beam modulators for each zone of the displayed scene for modulating said laser beam, separate line scanners for each zone of said scene for scanning the modulated laser beam over the input ends of respective fibre optic light guides, the said fibre optic light guides having their output ends at spaced-apart positions on the viewer's helmet, and frame scanning means mounted on the said helmet for receiving light from the light guide outputs and projecting the light as simultaneous scan lines of the two said zones to form the composite displayed scene on the screen.

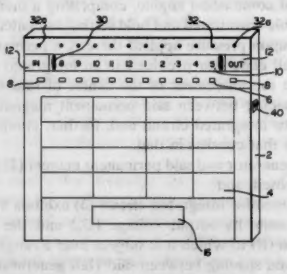
4,340,879
PERSONNEL IN AND OUT INDICATOR

Daniel Laflamme, 1490 - 1500 W. Gerogia St., British Columbia, Canada (V6G 2Z6)

Filed Dec. 15, 1980, Ser. No. 216,448

Int. Cl.³ G08B *5/36*

U.S. Cl. 340—286 R **7 Claims**



1. An electronic device for recording and displaying information regarding the arrival and departure of personnel at a location, comprising:

(a) a frame;

(b) a series of manually operable personnel indicating switches exposed on the frame, each of such switches representing a particular person or persons on different shifts in respect of which information is to be recorded or displayed, each of these switches only being actuable exclusively of the others;

(c) a further series of manually actuable time indicating switches exposed on the frame, each of such switches representing a particular time, and each of such switches only being actuable exclusively of the others;

(d) memory means electrically associated with the personnel indicating and time indicating switches to receive and store information received from these switches;

(e) means electrically associated with the memory means and personnel indicator switches, and actuable upon selection of a personnel indicating switch, to retrieve information stored in the memory means with respect to that person and display it at a time display means visibly located on the frame; and

(f) switch means to actuate the information retrieval means.

4,340,880
METHOD AND APPARATUS FOR SIGNAL RECOGNITION IN A REMOTE CONTROL SYSTEM WITH INFLUENCING OF THE ZERO POINT TRANSITION OF THE ALTERNATING-CURRENT MAINS VOLTAGE

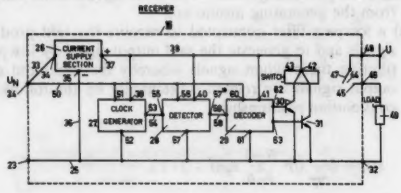
Eduard Baumann, and Roger Kniel, both of Uster, Switzerland, assignors to Zellweger Limited, Uster, Switzerland

Filed Sep. 9, 1980, Ser. No. 185,425

Claims priority, application Switzerland, Oct. 12, 1979, 9210/70

Int. Cl.³ H04B *3/54*

U.S. Cl. 340—310 R **22 Claims**



1. A method of producing, transmitting and recognising a signal in a remote control system having a transmitter-end and a receiver-end, comprising the steps of:

producing a remote control signal by intentionally influencing the course of the voltage at the transmitter-end during an influencing period at a region of said voltage course around at least one zero point transition of the alternating-current mains voltage at the transmitter-end;

impressing the remote control signal thus produced upon said alternating-current mains voltage;

transmitting said remote control signal to the receiver-end;

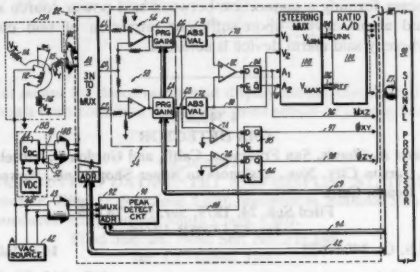
detecting the occurrence of such remote control signal at the receiver-end by comparing the course of the receiver-end alternating-current mains voltage at a region around a zero point transition with said course in a previous such transition region; and

accomplishing such comparision operation such that it commences in each case before an expected theoretical zero point transition of the alternating-current mains voltage.

4,340,881
UNIVERSAL ANALOG SIGNAL TO DIGITAL SIGNAL INTERFACE

Timothy F. Stack, and George T. Shoemaker, both of Enfield, Conn., assignors to United Technologies Corporation, Hartford, Conn.

Filed Jun. 12, 1980, Ser. No. 158,860
Int. Cl.³ H03K *13/02*
U.S. Cl. 340—347 R **3 Claims**



1. Analog to digital signal interface for providing digital signal representations of AC and DC analog signal presented alternatively as two wire absolute value signals from an absolute value sensor excited by an associated sensor excitation source, and as three wire ratiometric signals from a common signal source, comprising:

signal switching means, connected for response to the signal outputs of the absolute value sensor and common signal source and to the sensor excitation source, for presenting pairs of output signals representing, alternately in response to the analog signal received, the pair of signals comprising each ratiometric input signal, and for each absolute value input signal, the absolute value signal and the excitation signal from the associated excitation source;

signal conditioning means responsive to said pairs of output signals from said switching means, for providing signal manifestations of each output signal magnitude and, in response to AC analog signal information, of each output signal phase; and

signal conversion means, responsive to said signal manifestations of magnitude and phase from said signal conditioners, for providing a ratio digital signal representative of the smaller value signal magnitude manifestation divided by the larger value signal magnitude manifestation, for providing a phase digital signal for each signal manifestation of phase, and for providing a magnitude digital signal indicative of the relative values of said signal manifestations of magnitude.

4,340,882
D/A CONVERSION SYSTEM WITH COMPENSATION CIRCUIT

Kenji Maio, Tokyo, and Tsuneta Sudo, Kodaira, both of Japan, assignors to Nippon Telegraph and Telephone Public Corporation and Hitachi, Ltd., both of Tokyo, Japan

Filed Mar. 23, 1978, Ser. No. 889,559
Claims priority, application Japan, Apr. 6, 1977, 52-38519
Int. Cl.³ H03K *13/02*
U.S. Cl. 340—347 CC **8 Claims**

1. A D/A conversion system comprising:

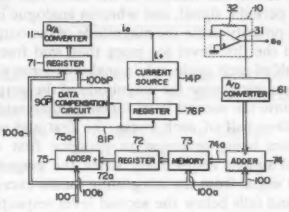
input means for applying a digital signal composed of n upper bits and m lower bits as an input to the system;

a D/A converter for converting the digital input signal applied from said input means into an analog signal;

output means for receiving the analog signal applied from said D/A converter to provide an analog output signal of the system;

memory means for storing a compensation data, used for the compensation of non-linearities inherent in the D/A converter by compensation of the analog signal appearing from said output means, at an address corresponding to the upper bit portion of the digital input signal;

adder means for adding the compensation data, read out from said memory means at the address corresponding to the upper bit portion of the digital input signal applied from said input means and the lower bit portion of the digital input signal; and



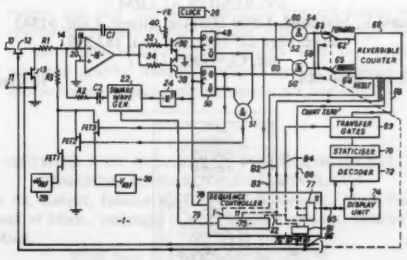
signal applying means for applying the output signal of said adder means representing the result of addition to said D/A converter together with the upper bit portion of the digital input signal, and further comprising

an A/D converter for converting the analog signal appearing from said output means into a digital signal when said adder means is rendered non-operative, and arithmetic means for computing the difference between the digital input signal applied from said input means and the digital signal appearing from said A/D converter and applying the difference signal to the address of said memory means specified by the upper bit portion of the digital input signal.

4,340,883
BIPOLAR MARK-SPACE ANALOGUE TO DIGITAL CONVERTER WITH BALANCED SCALE FACTORS

John G. Cook, Mytchett, England, assignor to The Solartron Electronic Group Limited, Farnborough, England

Filed Jun. 14, 1978, Ser. No. 915,488
Claims priority, application United Kingdom, Jun. 20, 1977, 25744/77; Jun. 20, 1977, 25745/77
Int. Cl.³ H03K *13/02, 13/20*
U.S. Cl. 340—347 NT **4 Claims**



1. A bipolar mark-space analogue-to-digital converter having balanced scale factors for positive and negative applied voltages comprising:

integrating means for receiving an analog input signal to be converted;

means for superimposing a periodic signal on the output signal produced by the integrating means;

first and second reference signal sources of opposite polarity;

first and second level detectors connected to compare the output signal from the integrating means with first and second detector levels respectively, wherein, to balance scale factors substantially independently of drift or imbalance in said reference signal sources, for zero input signal, the periodic signal causes the magnitude of the output signal from the integrating means to exceed the first level by crossing it in a direction away from the second level for at least a substantial fraction of one half of each cycle of the periodic signal, and to fall below the second level by crossing it in a direction away from the first level for at least a substantial fraction of the other half of each cycle of the periodic signal, and wherein analogue input signals of one polarity cause the magnitude of the output signal to exceed the first level for more than said fraction of said one half of each cycle, while analogue input signals of the other polarity cause the magnitude of the output signal to fall below the second level for more than said fraction of said other half of each cycle, the first and second level detectors being arranged to produce first and second control signals respectively when the magnitude of the output signal from the integrating means exceeds the first level and falls below the second level respectively;

switch means responsive to the first control signal to apply one of said reference signal sources, opposite in polarity to said one polarity of the analogue input signal to the integrating means, said switch means being also responsive to the second control signal to apply the other of said reference signal sources to the integrating means;

means for defining a conversion interval equal in duration to the duration of an integral number of cycles of said periodic signal;

further switch means for applying said analogue input signal to the integrating means for the duration of one conversion interval and for applying zero input signal to the integrating means for the duration of another conversion interval;

a source of clock pulses; and

counter means responsive to the first and second control signals for counting the clock pulses during the application of either of the reference signal sources to the integrating means, whereby the count in the counter means at the end of the one conversion interval, combined with the count at the end of the other conversion interval, is a digital representation of the magnitude of the integral of the analogue input signal over the one conversion interval, corrected for zero drift.

4,340,884

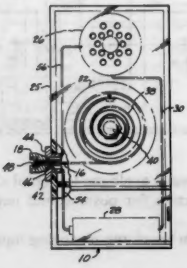
INTRUSION ALARM

Ronald E. Maizland, 12909 Harding, Silmar, Calif. 91342

Filed May 22, 1980, Ser. No. 152,299

Int. Cl.³ G08B *13/12*

U.S. Cl. 340—548 **10 Claims**



1. An intrusion alarm apparatus comprising: a retractible, flexible cord; releasible means attached to said cord for releasibly holding said cord in an extended position across an entry way; retractor means enabling said cord to be drawn out to said extended position, and to retract the cord when said releasible means is released; a source of power; electrically conductive metal plug means attached to said cord forming part of said release means when said cord is in said extended position; an alarm device; said release means adapted to be released when in a spanning relationship to said entry and there is entry through said entry way, said electrically conductive metal plug means forming a connection between said power source and said alarm device upon sufficient retraction of said cord, whereby said alarm device is actuated.

4,340,885

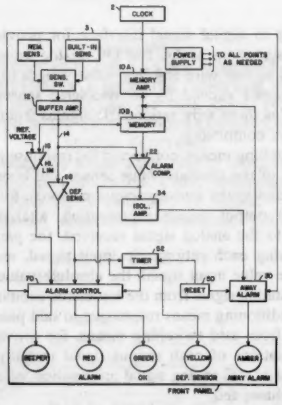
GAS DETECTOR

Leon A. Chavis, San Francisco, Calif., and Gordon P. Moseley, Carson City, Nev., assignors to Super Shops, Inc., Newport Beach, Calif.

Filed Sep. 24, 1979, Ser. No. 78,608

Int. Cl.³ G08B *17/10*

U.S. Cl. 340—632 **147 Claims**



1. An electronic circuit for a gas detector including clock means, said circuit comprising means to sample, track and store signals proportional to gas detected, said clock means controlling the operation of said sample, track and store means, said detector comprising alarm means, and said circuit comprising means to cause said clock means to operate at least a portion of said alarm means in an alternating manner.

4,340,886

BEARING AND MOTOR TEMPERATURE MONITOR

Robert R. Boldt, Taylor Ridge, Ill., and Arthur R. Nelson, Davenport, Iowa, assignors to Dickey-john Corporation, Auburn, Ill.

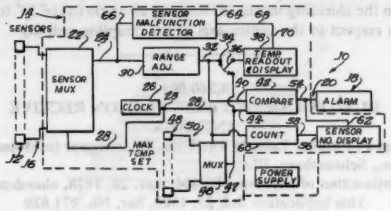
Filed Jul. 3, 1978, Ser. No. 921,489

Int. Cl.³ G01K *1/02*; G08B *19/00*

U.S. Cl. 340—682 **12 Claims**

1. A bearing temperature monitor comprising sensor means mounted in thermal contact with each of a plurality of bearings whose temperature is to be monitored, circuit means responsive to said sensor means for producing first signals corresponding to the respective temperatures thereat, lines joining said sensor means with said circuit means, display means coupled with said circuit means for producing an observable indication of the temperatures at each sensor means and input fault

detection circuit means having input means coupled with said joining lines and responsive to an open circuit condition at said



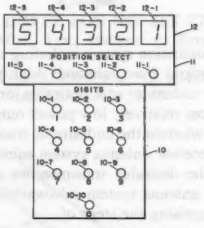
input means for deactivating said display means, thereby indicating a fault condition at the associated sensor or joining line.

4,340,887

PUSHBUTTON DATA ENTRY AND DISPLAY SYSTEM

Francis F. Dias, II, San Jose, Calif., assignor to National Semiconductor Corporation, Santa Clara, Calif.

Filed Jan. 24, 1980, Ser. No. 115,145
Int. Cl.³ G09G *3/00*
U.S. Cl. 340—711 **1 Claim**



1. A data entry and display system for loading any one of N digits into any position on an M digit data bus for transmission to a digital processor where N and M are integers, said system being comprised of:

a set of N pushbutton switches each of which is representative of one of said digits;

a set of M pushbutton switches; each of which corresponds to one of said M digit positions; and

a set of M identical circuits operating in parallel, each of the circuits including:

an encoder including a plurality of FET transistors and a plurality of encoder output conductors, the transistors having sources connected to a voltage +V, gates selectively connectable to the voltage +V through the depressing of corresponding ones of the N pushbutton switches, and drains connected to corresponding ones of the encoder output conductors so that a digital code will be generated on the encoder output conductors corresponding to the number represented by the depressed one of the N pushbutton switches,

a first data storage register having a plurality of input terminals, a plurality of output terminals and a clock terminal, the input terminals being connected to corresponding ones of the encoder output terminals,

an OR gate having inputs connected to the encoder output terminals and an output connected to the clock terminal of the first register so that a signal on the output of the OR gate will cause the digital code generated on the encoder output conductors to be stored in the first register,

a second data storage register having a plurality of input terminals, a plurality of output terminals and a clock terminal, the output terminals of the first register being connected to the input terminals of the second register for storing therein the contents of the first register in response to the depressing of one of the M pushbutton switches connected to the clock terminal of the second register,

means for connecting the output terminals of the second register to the M digit data bus,

a decoder having a plurality of input terminals connected to the output terminals of the second register for generating on a plurality of output terminals segment display signals representative of the number of the depressed one of the N pushbutton switches, and

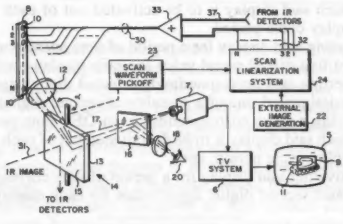
an electro-optic display element having a plurality of input terminals connected to the output terminals of the decoder for receiving the segment display signals and displaying the number of the depressed one of the N pushbutton switches.

4,340,888

SCAN LINERIZATION METHOD AND DEVICE

James M. Seroskie, Orlando, Fla., assignor to Martin Marietta Corporation, Orlando, Fla.

Filed Apr. 1, 1980, Ser. No. 136,223
Int. Cl.³ G09G *3/00*
U.S. Cl. 340—755 **12 Claims**



1. In a system for producing graphic images by means of a nonlinear scanning element which scans a multiplicity of scanning lines, apparatus for compensating for scanning nonlinearities comprising:

means for quantizing the scanning lines into a selected number of discrete image elements;

staircase waveform generation means for producing an electrical staircase waveform having equal amplitude steps equal in number to the selected number of image elements;

staircase waveform control means connected to said staircase waveform generation means for controlling the temporal spacing between said amplitude steps to be complementary to the scanning nonlinearities; and

signal introducing means associated with said quantizing means and said staircase waveform control means and responsive to each successive one of said amplitude steps to introduce image-defining signals into the system whereby graphic images produced by the system in response to said image-defining signals are undistorted.

4,340,889

METHOD AND APPARATUS FOR COORDINATE DIMMING OF ELECTRONIC DISPLAYS

Eric M. Knight, Inkster, and Edward S. Greene, Allen Park, both of Mich., assignors to Ford Motor Company, Dearborn, Mich.

Filed Aug. 6, 1980, Ser. No. 175,785
Int. Cl.³ G09G *3/00*
U.S. Cl. 340—793 **5 Claims**

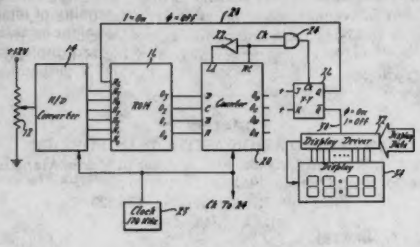
1. A method of adjustably activating an electronic display for selected display cycle periods defined by correspondingly selected ON time periods of activation in combination with correspondingly selected OFF time periods of deactivation to control the brightness level of an electronic display over a

predetermined pattern of brightness levels, comprising the steps of:

providing a control voltage having a value selected from a predetermined range of voltage values;

converting the selected value of said control voltage to one of a plurality of digital signals respectively corresponding to a separate predesignated portion of said range;

converting said correspondingly selected digital signal to a predesignated one of a plurality of first digital signals having a value corresponding to an ON time period for



which said display is to be activated out of each defined display cycle period;

activating said display for a period of time corresponding to said first digital signal value for each display cycle;

converting said correspondingly selected digital signal to a predesignated one of a plurality of second digital signals having a value corresponding to an OFF time period for which said display is to be deactivated out of each defined display cycle period; and

deactivating said display for a period of time corresponding to said second digital signal value for each display cycle.

4,340,890

ARRANGEMENT FOR TELEMETRICALLY MONITORING MOVING MACHINE PARTS

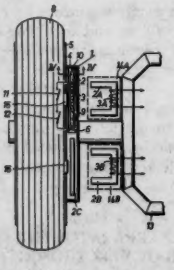
Kurt Fritze, Dibberser Mühlenweg 91b, 2110 Buchholz, Nordheide, Fed. Rep. of Germany

Filed Sep. 8, 1980, Ser. No. 184,636

Claims priority, application Fed. Rep. of Germany, Sep. 6, 1979, 2935965

Int. Cl.³ G08C *19/08*

U.S. Cl. 340—870.32 **7 Claims**



1. In an apparatus for telemetrically monitoring a moving machine part, particularly a rotating vehicle wheel, by means of a transmitter and receiver assembly stationary with respect to said moving part, said transmitter and receiver being spaced from and electrically shielded from one another and provided with output and input coils which are inductively coupled periodically by a coupling means mounted on said moving machine part or rotating vehicle wheel, respectively, via an induction coupling means (1) also mounted thereon, the improvement characterized in that said coupling coil (3) is surrounded by an electrically conductive shielding means (6) provided with an aperture (7) only in its front side facing toward said transmitter and receiver assembly, said aperture (7) in the shielding means (6) forming an angle (α) of 10° to 60° with respect to the centre axis of the coupling coil (3).

4,340,891

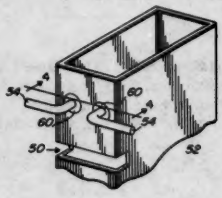
DUAL POLARIZED BASE STATION RECEIVE ANTENNA

James P. Phillips, Lake In The Hills, Ill., assignor to Motorola, Inc., Schaumburg, Ill.

Continuation of Ser. No. 900,404, Apr. 26, 1978, abandoned. This application Jul. 23, 1980, Ser. No. 171,629

Int. Cl.³ H01Q *11/13, 21/29*

U.S. Cl. 343—713 **4 Claims**



1. In a communication system including undesirable off-frequency transmissions from relatively high power output mobile transmitter antennas and desirable on-frequency signal transmissions from relatively low power output portable transmitter antennas wherein the undesirable transmissions arrive at a base station receiver antenna system substantially vertically polarized and the desirable transmissions arrive at the base station receiver antenna system substantially cross polarized, the method comprising the steps of:

providing the receiver antenna system with a dipole means having relatively high gain response to horizontally polarized signals combined in a unitary structure with a slot means for providing relatively low gain response to vertically polarized signals to receive and combine the desirable and undesirable transmissions, and to provide a degree of isolation between the desirable and undesirable transmissions; and

coupling the receiver antenna system to a base station receiver such that the received desirable and undesirable transmissions are simultaneously coupled to the base station receiver.

4,340,892

DOPPLER NAVIGATION ANTENNA HAVING AUTOMATIC LAND-SEA ERROR CORRECTION

Anton Brunner, Wangen, and Werner Jatsch, Neubiberg, both of Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

Filed Dec. 7, 1970, Ser. No. 95,888

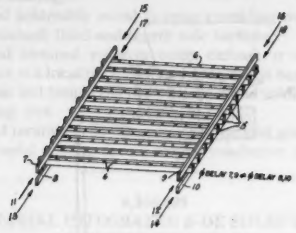
Claims priority, application Fed. Rep. of Germany, Dec. 12, 1969, 1962436

Int. Cl.³ H01Q *13/10*

U.S. Cl. 343—768 **15 Claims**

1. A doppler navigation antenna with automatic land-sea correction utilizing the production of two somewhat differently inclined lobe groups of four lobes each, comprising a plane radiator group including a plurality of individual radiating arrays arranged in parallel rows, each of said radiating arrays including two ends having respective feed points, a first pair of feed lines extending transversely of said radiating arrays and coupled thereto at the respective feed points at one end thereof, and a second pair of feed lines extending transversely

of said radiating arrays and coupled thereto at the respective feed points at the other end thereof, one feed line of each pair



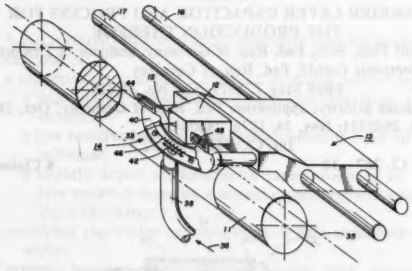
having a different phase delay than the other feed line of the same pair.

4,340,893

SCANNING DRYER FOR INK JET PRINTERS

Donald L. Ort, Dallas, Tex., assignor to Xerox Corporation, Stamford, Conn.

Filed Nov. 5, 1980, Ser. No. 204,093
Int. Cl.³ G01D *15/00*
U.S. Cl. 346—1.1 2 Claims



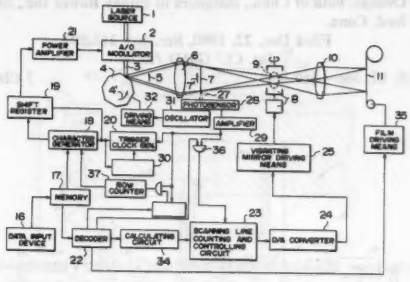
1. A method of printing, which comprises:
(a) providing an ink jet droplet emitter on a scanning carriage;
(b) providing a record surface positioned such that when said ink jet droplet emitter emits droplets, it prints on said record surface along a predetermined line of printing;
(c) causing said ink jet droplet emitter to scan said record surface in a direction parallel to said predetermined line in a first direction;
(d) causing said ink jet droplet emitter to scan said record surface in a second direction parallel to but opposite in direction from said first direction;
(e) causing said ink jet droplet emitter to emit droplets while said ink jet droplet emitter is scanning in said first direction and in said second direction;
(f) providing a dryer for directing a drying gas positioned on both sides of said ink jet droplet emitter on said scanning carriage such that said dryer is positioned to dry droplets on said record surface in the vicinity of said droplet emitter by directing drying gas to said vicinity on both sides of said ink jet emitter; and
(g) operating said dryer to dry ink jet droplets on said record surface.

4,340,894

LASER BEAM RECORDING SYSTEM

Hiroshi Oono, and Masahiro Ohnishi, both of Asaka, Japan, assignors to Fuji Photo Film Co., Ltd., Minami-ashigara, Japan

Filed Jul. 14, 1980, Ser. No. 168,786
Claims priority, application Japan, Jul. 13, 1979, 54-89014
Int. Cl.³ G01D *15/14*
U.S. Cl. 346—108 4 Claims



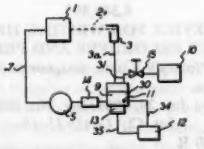
1. In a laser beam recording system having a recording state and a non-recording state, and wherein a laser beam is modulated by an acousto-optic modulator and a zero-order diffraction light beam is deflected horizontally in accordance with primary scanning and vertically in accordance with secondary scanning so as to two-dimensionally scan a recording material to record information thereon in recording areas thereof, the improvement comprising command means for issuing commands including a stop command to stop vertical scanning, further means for providing a vertical scanning starting position signal, a light shielding mask provided outside said recording area above the recording material, and control means responsive to said stop command and to said vertical scanning starting position signal for deflecting the laser beam out of the recording area onto a vertical scanning starting position on said light shielding mask in the non-recording state of the recording system.

4,340,895

DEGASSING INK SUPPLY APPARATUS FOR INK JET PRINTER

Masatsugu Kikuchi, Ebina, Japan, assignor to Xerox Corporation, Stamford, Conn.

Filed Oct. 14, 1980, Ser. No. 196,506
Int. Cl.³ G01D *15/18*
U.S. Cl. 346—140 R 8 Claims



1. In an ink drop printer of the type wherein ink drops are continuously produced from a continuous stream of liquid ink emitted under pressure from at least one nozzle coupled to a manifold containing the ink, the improvement being degassing ink supply apparatus comprising
an ink supply vessel for storing a liquid ink from which the ink drops are produced including a space above a liquid containing gasses,

pump means for supplying ink in the supply vessel to the manifold at a drop producing pressure and

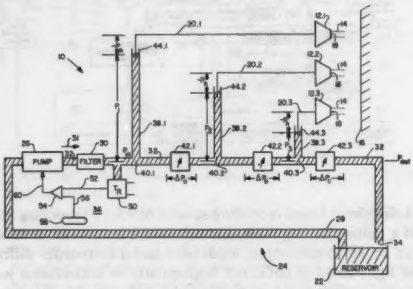
degassing means coupled to the supply vessel including heating means for heating liquid in the supply vessel for degassing a liquid contained therein.

4,340,896

IMPULSE INK JET INK DELIVERY APPARATUS

Antonio S. Cruz-Uribe, Cobalt, and Frank T. Check, Jr., Orange, both of Conn., assignors to Pitney Bowes Inc., Stamford, Conn.

Filed Dec. 22, 1980, Ser. No. 218,897
Int. Cl.³ G01D *15/18*
U.S. Cl. 346—140 R **7 Claims**



1. An apparatus for delivering ink from a supply to inputs of a plurality of ink jet heads of the type which deliver ink through capillary action to orifices from which ink drops are ejected and wherein ink jet heads are disposed to print from different vertical positions, comprising:

conduit means extending from an intake at said supply to an ink discharge port;

means for producing in said conduit means and from said supply of ink a flow of ink starting at an upstream location to flow downstream to said ink discharge port;

means for coupling ink jet heads disposed at different vertical positions to said conduit means at junctions whose successive positions along the stream of ink correspond with successive vertically lower positions of the ink jet heads;

means interposed in said conduit means and at least between said junctions for generating a fluid flow impedance therein of a magnitude selected to enable formation of a column of ink in the coupling means on the upstream located junction with the column height commensurate with the vertical height of the ink jet head supplied with ink from the column.

4,340,897

CLEANING DEVICE FOR WRITING HEADS USED IN INK JET RECORDERS AND PRINTERS

Peter T. Miller, Norwalk, Conn., assignor to Pitney Bowes Inc., Stamford, Conn.

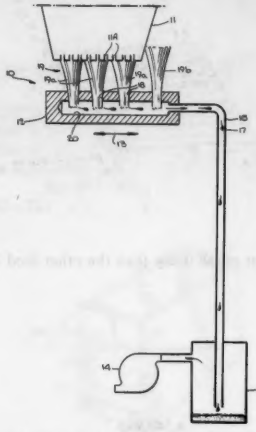
Filed Jul. 29, 1981, Ser. No. 288,245
Int. Cl.³ G01D *15/18*
U.S. Cl. 346—140 R **11 Claims**

1. An apparatus for use in an ink jet recording device or printer for cleaning a writing head having at least one nozzle therein through which ink flows, said apparatus comprising:

manifold means movable in a horizontal direction and including an internally located reservoir and a brush formed of a plurality of fiber elements extending from the reservoir through the manifold, the fiber elements being urged into contact with said nozzles upon sufficient movement of the manifold;

vacuum means communicating in fluid flow with said reservoir for forming a negative air pressure along said fibers; and

chamber means communicating in fluid flow with both said



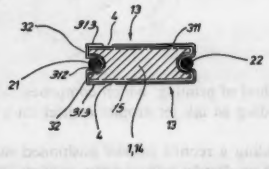
manifold and said vacuum means, whereby upon said fibers being urged into contact with said nozzles said vacuum means causes ink to flow from said writing head along said fibers and into said chamber.

4,340,898

BARRIER-LAYER CAPACITOR AND PROCESS FOR THE PRODUCTION THEREOF

Rudolf Fink, Selb, Fed. Rep. of Germany, assignor to Draloric Electronic GmbH, Fed. Rep. of Germany

Filed May 7, 1979, Ser. No. 36,415
Claims priority, application Fed. Rep. of Germany, Oct. 21, 1978, 2845931; Nov. 24, 1978, 2850845
Int. Cl.³ H01L *29/92*
U.S. Cl. 357—10 **8 Claims**



1. A barrier layer capacitor, comprising:

a central, conductive ceramic bar having a substantially rectangular cross section defined by first and second opposite side surfaces having third and fourth side surfaces extending therebetween;

a reoxidation barrier layer formed on almost all of said side surfaces;

said first side surface including a first portion at which said reoxidation barrier layer is formed and a second portion at which said reoxidation barrier layer is not formed;

a first terminal lead receiver being defined at said first portion of said first side surface;

a first solderable metal coating covering said first portion of said first side surface;

a barrier layer free connection coating extending from said first solderable metal coating to said second section of said first surface such that said barrier layer free connection is in direct contact with said central, conductive ceramic bar

and said first solderable metal is in electrical contact with said central, conductive ceramic bar;

a first terminal lead being fastened on said first solderable metal coating;

a second solderable metal coating extending over most of said second, third and fourth side surfaces;

a second terminal receiver being defined at said second surface at a location where said reoxidation barrier layer is formed and being covered by said second solderable metal coating; and

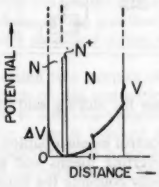
a second terminal lead being fastened on said second solderable metal coating at said second conductor receiver.

4,340,899

EPITAXIAL INTEGRATED E-DE SOLID STATE DETECTOR TELESCOPE

Kazuo Husimi, 32, Naka machi, Kodaira City, Tokyo, and Chisu Kim, 1-380, Ogawa, Kodaira City, Tokyo both of Japan

Filed Jan. 31, 1980, Ser. No. 117,352
Claims priority, application Japan, Sep. 27, 1979, 54-124885
Int. Cl.³ H01L *27/14*
U.S. Cl. 357—29 **11 Claims**



1. An epitaxial integrated E-dE solid state detector telescope comprised of:

a semiconductor having a complex structure comprising:

a high purity semiconductor substrate providing an E detector,

a low resistive heavily doped semiconductor layer on said substrate,

a slightly doped semiconductor layer produced on said low resistive layer by epitaxial crystal growth providing a dE detector;

rectifying electrodes on both sides of said semiconductor wafer;

reverse biasing means reverse biasing said electrodes whereby depletion layers extend from outside toward said low resistive layer;

said low resistive layer electrically isolating said dE detector from said E detector.

4,340,900

MESA EPITAXIAL DIODE WITH OXIDE PASSIVATED JUNCTION AND PLATED HEAT SINK

Herbert Goronkin, Scottsdale, Ariz., assignor to The United States of America as represented by the Secretary of the Air Force, Washington, D.C.

Filed Jun. 19, 1979, Ser. No. 50,272
Int. Cl.³ H01L *29/06, 29/90, 23/02*
U.S. Cl. 357—56 **3 Claims**

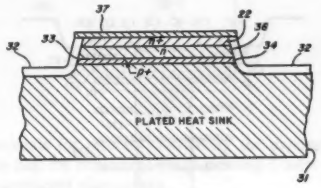
1. A silicon mesa epitaxial diode, comprising:

a. a first layer of lightly doped silicon of a first conductivity type, said first layer comprising a base segment of a mesa structure;

b. a second layer of heavily doped silicon of the first conductivity type in contact with said first layer and extending the mesa from said first layer;

c. a passivation layer of highly pure SiO_2 thermally grown at a temperature in excess of 1000° C. on the mesa walls only of said first and second layers and continuing outwardly from said base segment, said passivation layer having a thickness of between 1 and 1.5 microns;

d. means for providing a shallow abrupt pn junction in said first layer, said means including a layer of dopant of a second conductivity type diffused in a surface region of said first layer and extending across said surface region into contact with said layer of highly pure thermally grown SiO_2, said shallow abrupt pn junction characterized as being formed subsequent to the formation of said passivation layer so that diffusion of said dopant does not



occur as a result of the thermal growth of said passivation layer;

e. a thick layer of thermally and electrically conductive metal plated directly on said layer of dopant and said passivation layer continuing outwardly from said base segment; and

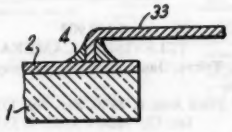
f. a third layer of electrically conductive material on said second layer, said third layer in electrical contact with said second layer and extending the mesa from said second layer.

4,340,901

LEAD CONNECTING STRUCTURE FOR A SEMICONDUCTOR DEVICE

Shinzo Anazawa, and Hideaki Kozu, both of Tokyo, Japan, assignors to Nippon Electric Co., Ltd., Tokyo, Japan

Continuation of Ser. No. 879,863, Feb. 22, 1978, abandoned.
This application Dec. 21, 1979, Ser. No. 105,964
Claims priority, application Japan, Feb. 25, 1977, 52-22962[U]
Int. Cl.³ H01L *23/48, 29/44, 29/52*
U.S. Cl. 357—68 **8 Claims**

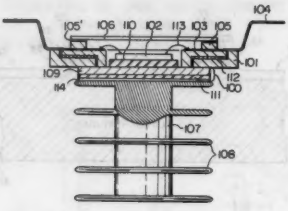


1. A brazing structure comprising a support member having a brazable plane, a brazable elongated external lead having its one end portion brazed to said brazable plane inwardly of an edge of said support member with the remaining elongated portion of said lead extending freely from said end portion substantially parallel to said brazable plane, and means for protecting the connection between said one end portion of said lead and said brazable plane as well as between said brazable plane and said support member against pull up stresses to be applied to said lead, said protecting means including a bend at said one end portion of said lead and a solder so connecting the bent end portion of said lead to said brazable plane that the tip end of said bent end portion abut on said brazable plane at a portion spaced from said edge of said support member.

4,340,902
SEMICONDUCTOR DEVICE

Norio Honda, and Takehisa Sugahara, both of Kawasaki, Japan, assignors to Fujitsu Limited, Kawasaki, Japan

PCT No. PCT/JP78/00004, § 371 Date Jul. 18, 1979, § 102(e) Date Jul. 12, 1979, PCT Pub. No. WO79/00302, PCT Pub. Date May 31, 1979
PCT Filed Oct. 2, 1978, Ser. No. 128,354
Claims priority, application Japan, Nov. 18, 1977, 52-138486
Int. Cl.³ H01L 23/02, 23/12, 39/02
U.S. Cl. 357—74 7 Claims



1. In a semiconductor device having a semiconductor chip (102) in a through hole provided substantially in the central portion of a ceramic base (101), an improvement which comprises: a high-heat conductivity metal plate (100) which covers one side of said through-hole and which is secured to one of the major surfaces of said ceramic base (101); said high-heat conductivity metal plate (100) being a laminated single unitary structure formed by a ductile metal plate (109) and a molybdenum plate (111); said semiconductor chip (102) being secured through another molybdenum plate (110) onto the bottom of a recess formed by means of one side of said high-heat conductivity metal plate (100) and said through-hole of said ceramic base (101), said through-hole being formed substantially in a square configuration and each inner corner of the square hole being rounded; a cooling means (107, 108) being secured to the other side of said high-heat conductivity metal plate (100) by means of epoxy resin adhesive between opposed areas of said cooling means and said high-heat conductivity metal plate (100) thus making same substantially integral; and external connecting terminals (104, 104a, 104b, 104c, 104d) being provided on the other major surface of said ceramic base (101) and connected to the wire bonding pads of said semiconductor chip (102).

4,340,903
TELEVISION CAMERA

Eiji Tamura, Tokyo, Japan, assignor to Sony Corporation, Tokyo, Japan

Filed Aug. 6, 1980, Ser. No. 175,776
Int. Cl.³ H04N 9/62, 9/535
U.S. Cl. 358—10 11 Claims

1. A television camera adapted to be coupled to an external video device, comprising:

video pick-up means for providing a video signal;

adjustable video signal control means for adjusting the balance of said video signal;

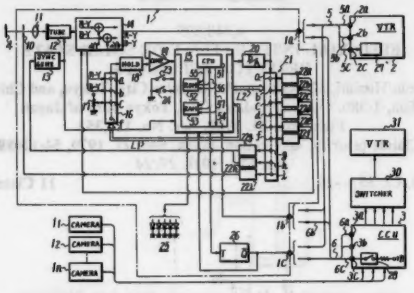
microcomputer means including a random-access memory having a plurality of addressable storage locations and a central processing unit for controlling the operation of said microcomputer and calculating a system control signal;

a source providing a control level;

first switching control means having inputs respectively coupled to receive the balance-adjusted video signal and said control level and output means coupled to said microcomputer means for selectively coupling one of said inputs to said output means for providing a corresponding data signal to said microcomputer means to be read into one of said storage locations;

digital-to-analog converting means for converting the contents of a selected one of said storage locations to an analog data control signal;

means coupling said analog data control signal from said converting means to said output means of said first switching control means, so that said output means provides as said corresponding data signal a comparison signal based on the selected one of said balance-adjusted video signal and said control level and on said analog data control signal;



signal holding means for storing said analog data control signal;

second switching control means coupled between said digital-to-analog converting means and said signal holding means for selectively coupling the latter to said digital-to-analog converting means;

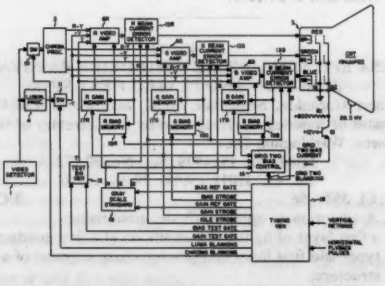
input terminal means coupled to said external video device to receive a camera control signal provided therefrom; and

output terminal means for providing the system control signal calculated by said microcomputer means to said external video device.

4,340,904
AUTOMATIC GRAY SCALE TRACKING SYSTEM FOR CATHODE RAY DISPLAY DEVICES

Earl R. Wingrove, Jr., North Syracuse, N.Y., assignor to General Electric Company, Syracuse, N.Y.

Filed Dec. 24, 1980, Ser. No. 219,826
Int. Cl.³ H04N 9/535
U.S. Cl. 358—29 15 Claims



1. Apparatus for achieving and maintaining gray scale tracking in a multibeam cathode ray color display device despite fluctuations in the electrical characteristics of said display device and the video amplifiers driving said device, comprising:

A. a source of detected video signals;

B. a test signal generator for providing bias test signals which, after prescribed amplification, produce beam currents corresponding to a standard gray video image of low intensity; and gain test signals which, after prescribed amplification, produce beam currents corresponding to a standard gray video image of intermediate intensity;
C. a plurality of video amplifiers, each including:
1. bias adjusting means responsive to a bias control quantity, and
2. gain adjusting means responsive to a gain control quantity,
D. switching means for coupling said video signals or said test signals to the inputs of said video amplifiers, said bias and gain test signals being coupled during predetermined bias and gain test periods, respectively;
E. a multibeam cathode ray color display device including:
1. a plurality of electron beam producing guns, each including a cathode, and
2. a beam blanking grid,
each gun being driven from the output of a corresponding video amplifier;
F. means for applying blanking potentials to said beam blanking grid during a portion of each test period;
G. a standard for producing current standards corresponding to the prescribed beam currents required for a gray image of low intensity during bias test periods, and for a gray image of intermediate intensity during gain test periods;
H. beam current error detection means, coupled to each cathode, comprising:
1. means for obtaining two samples of the cathode current, taken during each of said test periods when a given test signal is applied to said video amplifier, one sample being taken when the beam is blanked and the other sample being taken when the beam is not blanked, the difference in said samples representing the beam current;
2. means for storing the earlier cathode current sample for each test signal; and
3. summation means for combining the later cathode current sample, the stored earlier cathode current sample, and the current standard for each test signal, in a sense to obtain an error signal indicating the difference between the beam current and said current standard during the bias test period and during the gain test period;
I. a plurality of control memories, each coupled to a respective video amplifier, each control memory including:
1. bias memory means, coupled to said bias adjusting means of the respective video amplifier, for storing a bias control quantity, adjustable in response to said detected error signal obtained during said bias test period, for correction of said beam current toward said standard; and
2. gain memory means coupled to said gain adjusting means of each video amplifier for storing a gain control quantity, adjustable in response to said detected error signal obtained during said gain test period, for correction of said beam current toward said standard; and
J. means for timing the recited operation to allow gain error and bias error measurements in test periods selected to permit an uninterrupted image display while achieving continuous correction.

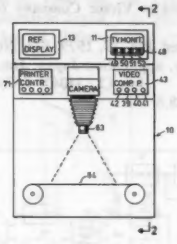
4,340,905

PHOTOGRAPHIC PRINTER AND COLOR FILM ANALYZER APPARATUS

George H. Balding, 1476 Tameron Dr., Sandy, Utah 84070

Filed Sep. 12, 1980, Ser. No. 186,486
Int. Cl.³ H04N 1/46
U.S. Cl. 358—80 **10 Claims**

1. Apparatus for analyzing and printing color and density corrected photographic prints from color film, comprising in combination:
video color film analyzer means for reviewing a positive image on a cathode ray tube taken from a color film, said analyzer having means for adjusting the color and density values of the image on the tube; and
photographic printing means having means for receiving said adjusted color and density values from said video color film analyzer means and simultaneously converting said color and density values into corresponding timed



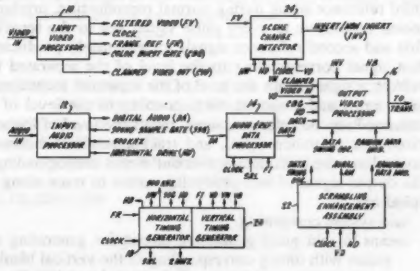
increments for directly controlling the exposure of the color film for immediate use in printing a color and density corrected photograph.

4,340,906

VIDEO SIGNAL CODING BY VIDEO SIGNAL POLARITY REVERSAL ON THE BASIS OF BRIGHTNESS LEVEL COMPARISON

Pieter den Toonder, Dordrecht; Johannes C. Seltenrijch, Gorichem, both of Netherlands; Graham S. Stubbs, Poway, Calif.; Pieter J. Fondse, Papendrecht, Netherlands, and Howard F. Jirka, Crystal Lake, Ill., assignors to Oak Industries Inc., Rancho Bernardo, Calif.

Filed May 14, 1980, Ser. No. 149,708
Int. Cl.³ H04N 7/16
U.S. Cl. 358—124 **10 Claims**



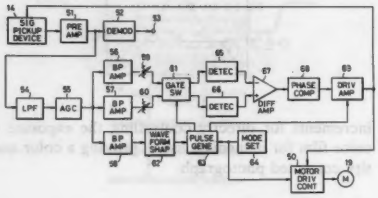
1. A method of coding video signals by repetitive alteration of the coding mode including the steps of:
(a) detecting a change in the picture scene carried by the video signal by comparing the brightness level of a predetermined time period of the video signal which time period includes a video signal field with the brightness level of the video signal over the succeeding predetermined time period, the brightness level being determined by comparing the instantaneous brightness level at successive subdivisions of said time period, each less than a single horizontal line, with an average brightness level,
(b) altering the coding mode of the video signal if the difference in brightness level between successive predetermined time periods exceeds a given value,
(c) and preventing such alteration of the coding mode except only between frames of the video signal.

4,340,907

SPECIAL REPRODUCING SYSTEM IN AN APPARATUS FOR REPRODUCING VIDEO SIGNALS FROM A ROTARY RECORDING MEDIUM

Atsumi Hirata, Yamato, and Kanji Kayanuma, Hadano, both of Japan, assignors to Victor Company of Japan, Ltd., Yokohama, Japan

Filed Jan. 19, 1979, Ser. No. 4,813
Claims priority, application Japan, Jan. 20, 1978, 53-5020
Int. Cl.³ H04N 5/76
U.S. Cl. 358—128.6 9 Claims



1. A reproducing system in an apparatus for reproducing a video signal from a rotary recording medium on which the video signal is recorded along a spiral track, each track turn of the spiral track containing a plurality of fields of the video signal, first and second reference signals being recorded on opposite sides of the track in such a manner that the sides on which the first and second reference signals are recorded are alternated for every track turn, a third reference signal being recorded at each position where said reference signals alternate in their position; said apparatus comprising reproducing element means for tracing over the spiral track on the rotary recording medium while picking up the video signal and the first, second and third reference signals, separating means for individually separating the first reference signal, the second reference signal and the third reference signal from the output signal of said reproducing element means, pulse generating means for generating a pulse signal in response to the separated third reference signal during normal reproduction, producing means responsive to every pulse signal and to the separated first and second reference signals for alternately producing a first signal corresponding to the level of the separated first reference signal minus the level of the separated second reference signal and a second corresponding to the level of the separated second reference signal minus the level of the separated first reference signal, and tracking control means for controlling the reproducing element means corresponding to the output signal of said producing means to trace along the spiral track;

said system comprising:

means in said pulse generating circuit for generating skip pulses with timing corresponding to the vertical blanking period positions of the recorded video signal during every rotational period of the rotary recording medium, the skip pulses having a number corresponding to an operational mode for carrying out a special reproduction which differs from the normal reproduction;

skipping means in said tracking control means operated in response to each of the skip pulses to cause the reproducing element means to shift to an adjacent track turn of the spiral track within the vertical blanking period of the recorded video signal; and

means in said pulse generating circuit for generating switching pulses with the timing of each of the skip pulses which occur except for the timing of the separated third reference signal, and for stopping the pulse signal in response to the skip pulses which occur in accordance with the timing of the separated third reference signal during the special reproduction;

said producing means alternately producing the first signal and the second signal in response to every switching pulse.

4,340,908

CONTROL LEVEL DISPLAYING APPARATUS

Hideo Wakabayashi, Souka, and Kenro Teraoka, Yokohama, both of Japan, assignors to Sony Corporation, Tokyo, Japan

Filed Nov. 21, 1980, Ser. No. 209,144
Claims priority, application Japan, Nov. 22, 1979, 54-161918[U]
Int. Cl.³ H04N 5/44
U.S. Cl. 358—194.1 6 Claims

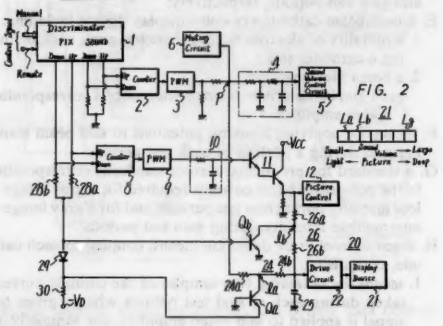


FIG. 2

1. A control level displaying apparatus, comprising:

control signal receiving means including discriminating means for producing at least one of a sound volume control signal and at least one characteristic control signal relating to at least one other characteristic of a received information signal, in response to a received control signal;

sound volume control generating means for producing a sound volume control voltage in response to said sound volume control signal;

second control generating means for producing at least one characteristic control voltage in response to said at least one characteristic control signal;

a sound volume control circuit for controlling the sound volume in response to said sound volume control voltage from said sound volume control generating means;

a second control circuit for controlling said at least one other characteristic in response to said at least one characteristic control voltage from said second control generating means;

control level displaying means for displaying the level of one of said control voltages;

supply means for selectively supplying one of the sound volume control voltage and the at least one characteristic control voltage to said control level displaying means; and

switch control means for controlling the operation of said supply means in response to said at least one characteristic control signal so as to supply said at least one characteristic control voltage to said control level displaying means when a control signal for said at least one other characteristic is received by said control signal receiving means.

4,340,909

SOLID STATE AREA IMAGING APPARATUS

Takahiro Yamada, Katano, and Hiromichi Tanaka, Hirakata, both of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Kadoma, Japan

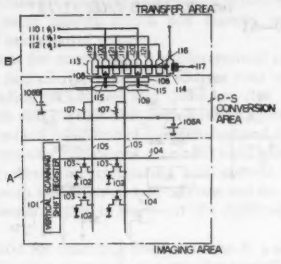
Filed Jul. 7, 1980, Ser. No. 166,115
Claims priority, application Japan, Jul. 5, 1979, 54-85274
Int. Cl.³ H04N 3/14
U.S. Cl. 358—213 16 Claims

1. A solid state area imaging apparatus for producing a video

signal representing an optical image of an object, said apparatus comprising:

a photosensitive means for converting impinging radiation into electrical signals and which consists of a plurality of photosensitive elements which are substantially linearly arranged in lines in both a horizontal and vertical scanning direction;

a scanning means operatively connected to said photosensitive means for accessing one line of said photosensitive elements at a time and for reading out signal charges therefrom one line at a time;



a charge transfer means, including an output register means and a p-s conversion means which is operatively connected between said photosensitive means and said output register means, for receiving said signal charges and for injecting charge signals into predetermined positions of said output register means, each of said charge signals corresponding to each of said signal charges, wherein said output register means transfers said charge signals out therefrom to produce a video signal.

4,340,910

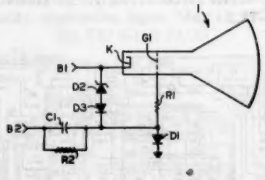
CRT SPOT SUPPRESSION CIRCUIT

Silverio A. Valdes, Alexander, N.Y., assignor to GTE Sylvania Incorporated, Seneca Falls, N.Y.

Filed Sep. 24, 1979, Ser. No. 78,421

Int. Cl.³ H04N *5/68*; H01J *29/96*; H02H *7/20*

U.S. Cl. 358—243 **4 Claims**



1. In a cathode ray tube system having a reference electrode coupled to a source of first potential voltage and a control electrode biased negatively with respect to the first potential voltage, spot-suppressing means coupled to a source of second potential voltage and the control electrode for superimposing negative-going transitions in the second potential voltage upon the control electrode so as to suppress spots on the face of the cathode ray tube system when that system is de-energized, said spot-suppressing means comprising breakdown means coupled between the reference electrode and the control electrode.

4,340,911

IMAGE GRADATION PROCESSING METHOD AND APPARATUS FOR MAMMOGRAM COPYING SYSTEM

Hisatoyo Kato; Masamitsu Ishida, and Seiji Matsumoto, all of Minami-ashigara, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Filed Feb. 22, 1980, Ser. No. 123,697

Claims priority, application Japan, Feb. 28, 1979, 54-23090

Int. Cl.³ H04N *5/32*

U.S. Cl. 358—280 **8 Claims**

1. A method of processing a mammogram image which includes images of glandular tissue, subcutaneous tissue, and skin where the densities of the images increase from a minimum density of the glandular tissue through a boundary density between the densities of the subcutaneous tissue and the skin to a maximum density of the skin where the mammogram image is scanned with a light beam and the image densities recorded therein are read out and converted into an electric signal, the level of which varies with the recorded image densities, and then an image is recorded on a recording medium having a fog density by use of the electric signal, said method comprising lowering the level of the electric signal corresponding to the minimum density of the glandular tissue of the mammogram down to a level between the level corresponding to the fog density and a level higher than the level corresponding to fog density by 0.3 in terms of the density of the recording medium, and lowering the density of the mammogram image as a whole with the lowering degree decreasing from the smaller densities thereof to the higher densities, whereby the contrast of the mammogram image is raised in the image recorded on the recording medium.

4,340,912

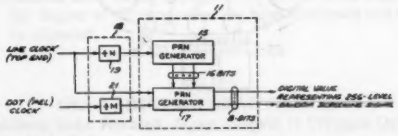
RANDOM SCREEN GENERATOR APPARATUS FOR PRODUCING HALFTONE IMAGES

Donald E. Troxel, Belmont, Mass., assignor to AM International, Inc., Chicago, Ill.

Filed Sep. 15, 1980, Ser. No. 187,292

Int. Cl.³ H04N *1/40*

U.S. Cl. 358—283 **10 Claims**



1. Apparatus for producing random digital numbers useable as random screen reference values in producing halftone images, the apparatus comprising:

a first random number generator means responsive to an applied first clock signal for producing a first output in accordance with the frequency of the first clock signal; and

a second random number generator means coupled to receive the first output and a second clock signal for producing a sequence of random screen reference values in ac-

cordance with the frequency of the second clock signal, the first output being used as a starting state by the second random generator means.

4,340,913

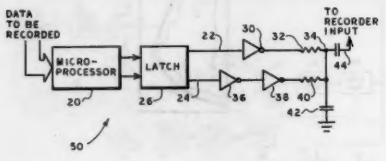
TRI-LEVEL DIGITAL RECORDING

Ellis K. Cave, Garland, Tex., assignor to TBS International, Inc., Richardson, Tex.

Division of Ser. No. 108,818, Dec. 31, 1979. This application Jan. 15, 1981, Ser. No. 225,278

Int. Cl.³ G11B *5/09*

U.S. Cl. 360—40 **8 Claims**



1. A machine-implemented method for coupling binary digital information to be recorded to an analog recorder comprising:

generating a first sequence of voltage levels corresponding directly to the data to be recorded;

generating a second sequence of voltage levels corresponding inversely to the data to be recorded;

inverting a selected one of said first and second sequences;

combining said inverted sequence and the sequence not selected for inversion in time registration to provide an output sequence of voltage levels; and

coupling said output sequence to the input of said recorder; then

forming and coupling a third voltage level to the input of said recorder.

4,340,914

THERMOMAGNETIC RECORDING AND REPRODUCING APPARATUS

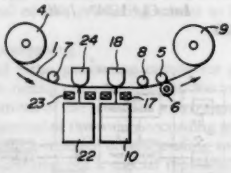
Naohiro Hanaoka, Hachioji, Japan, assignor to Olympus Optical Co., Ltd., Tokyo, Japan

Filed Mar. 24, 1980, Ser. No. 133,145

Claims priority, application Japan, Mar. 22, 1979, 54-33489

Int. Cl.³ G11B *5/02*

U.S. Cl. 360—59 **8 Claims**



1. A thermomagnetic recording and reproducing apparatus comprising a record medium running in a predetermined direction, first light generating means for generating a laser light beam for locally heating the medium, a first magnetic field generating device for generating a magnetic field at the heated portion, information recording means provided in opposition to the magnetic field generating device and having a first auxiliary magnetic pole piece for focusing first magnetic flux from the magnetic field generating device into at least the heated portion, second light generating means adjacent the information recording means upstream of the running of the medium for generating a second laser light beam for locally heating the medium, a second magnetic field generating device for generating a second magnetic field at the heated portion, and information erasing means having a second auxiliary magnetic pole piece for focusing a second magnetic flux from the magnetic field generating device into the heated portion.

4,340,915

MICROPHONE SENSITIVITY-CHANGING APPARATUS

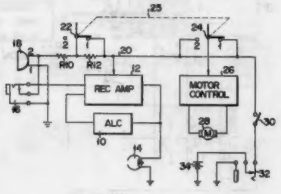
Toshiaki Nakamura, and Akira Yamamoto, both of Hachioji, Japan, assignors to Olympus Optical Co., Ltd., Tokyo, Japan

Filed May 29, 1980, Ser. No. 154,444

Claims priority, application Japan, Jun. 13, 1979, 54-80439[U]

Int. Cl.³ G11B *5/00, 15/10*

U.S. Cl. 360—61 **8 Claims**



1. In a tape recorder having means for providing a pause mode of operation, and a microphone circuit which includes a microphone, a microphone sensitivity-changing apparatus for changing the sensitivity of the microphone circuit in accordance with the object for which said tape recorder is being used,

the improvement comprising:

a first switch means coupled to said pause mode providing means for controlling the pause mode of the tape recorder; and

second switch means coupled to said microphone circuit and to said first switch means for selectively changing the sensitivity of the microphone;

said second switch means being interlockingly operable with said first switch means, whereby operation of said first switch means causes operation of said second switch means to change said sensitivity of the microphone.

4,340,916

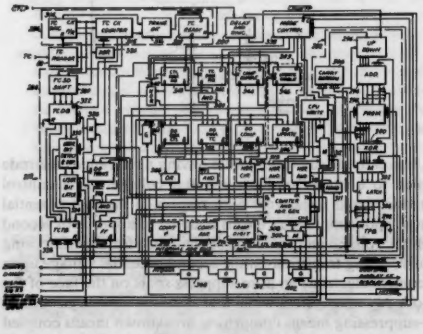
APPARATUS AND METHOD FOR DETECTING DISCONTINUITIES IN TIME CODE ADDRESSES

William A. Menezes, Mountain View, Calif., assignor to Sony Corporation, Tokyo, Japan

Filed Apr. 11, 1980, Ser. No. 139,702

Int. Cl.³ G11B *15/00, 27/12, 27/32;* **H04N** *5/795*

U.S. Cl. 360—72.2 **35 Claims**



1. An apparatus for detecting discontinuities in a sequence of

time code addresses recorded on a tape driven by tape drive means, for identifying corresponding information signals which are recorded on said tape along with a series of control pulses recorded in a control track extending lengthwise of the tape for the purpose of synchronizing the motion of said tape relative to transducer means for reading said information signals, said apparatus comprising:

time code reading means for reading a current time code address on said tape;

control pulse reading means for reading control pulses which are read as said tape moves in its lengthwise direction;

counting means for counting said control pulses read by said control pulse reading means and thereby providing a count of said control pulses;

setting means for establishing a predetermined relationship between said current time code address read by said time code reading means and said count, so that said count represents said current time code address at the time said predetermined relationship is established and so that said count thereafter represents a counted tape address; and

comparing means for comparing said current time code address with said counted tape address and for producing a non-compare signal in the event of a difference therebetween.

21. A method for detecting discontinuities in a sequence of time code addresses recorded on a tape for identifying corresponding information signals which are recorded on said tape along with a series of control pulses recorded in a control track along the length of said tape for the purpose of synchronizing the motion of said tape relative to transducer means which reads said information signals, said method comprising:

moving said tape;

reading a current time code address on said tape;

reading control pulses that pass a fixed point as said tape is moved;

counting said control pulses which are read and thereby providing a count of said control pulses;

establishing a predetermined relationship between said current time code address and said count so that said count represents said current time code address at the time said known relationship is established, and thereafter represents a counted tape address; and

comparing said current time code address with said counted tape address and producing a non-compare signal in the event of a difference therebetween.

4,340,917

BACK SPACING APPARATUS

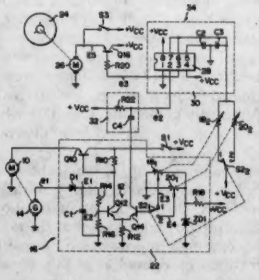
Kenzi Furuta, Hachioji, Japan, assignor to Olympus Optical Co., Ltd., Tokyo, Japan

Filed May 1, 1980, Ser. No. 145,735

Claims priority, application Japan, May 15, 1979, 54-59485

Int. Cl.³ G11B *15/20*

U.S. Cl. 360—74.2 **10 Claims**



9. In a back spacing apparatus comprising a first means for providing speed information corresponding to the transporting speed of a tape; a drive source means for rewinding the tape toward a supply reel; and a second means for providing electrical energy to said drive source means for rewinding tape toward said supply reel,

the improvement wherein:

said second means provides said electrical energy for rewinding in an amount corresponding to said speed information so that a length of the tape over which it is rewound toward the supply reel for back spacing is changed as a function of the transporting speed of the tape, the magnitude of said amount of electrical energy which is provided from said second means being changed as a function of said speed information so that an amount of memory contents on that portion of a recorded tape rewound toward said supply reel for back spacing is substantially independent of said transporting speed of the tape.

4,340,918

PIVOTED MAGNETIC HEAD MOUNT WITH ADJUSTABLE LIMIT

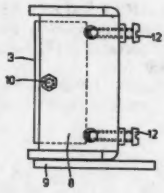
Herbert Jansen, Nuremberg, Fed. Rep. of Germany, assignor to GRUNDIG E.M.V. Elektro-Mechanische Versuchsanstalt Max Grundig, Fuerth, Fed. Rep. of Germany

Filed Nov. 28, 1979, Ser. No. 97,967

Claims priority, application Fed. Rep. of Germany, Feb. 8, 1979, 2904716

Int. Cl.³ G11B *21/24, 5/56*

U.S. Cl. 360—109 **7 Claims**



1. A device for automatically maintaining a magnetic head in transducing contact with a magnetic tape in a recording and/or playback apparatus with said device comprising;

a magnetic head having a transducing surface for contact with the magnetic tape;

mounting means supporting said head and allowing rotation of said head about an axis substantially parallel to the running direction of the tape adjacent to the head during operation of the apparatus; and

adjustable limit means engageable with said head whereby the degree of the rotation of the head about said axis may be adjusted.

4,340,919

HEAD ADJUSTMENT MECHANISM

Toshikazu Kato, Hachioji, Japan, assignor to Olympus Optical Co., Ltd., Tokyo, Japan

Filed Mar. 3, 1980, Ser. No. 126,201

Claims priority, application Japan, Mar. 20, 1979, 54-32946

Int. Cl.³ G11B *21/24, 5/56*

U.S. Cl. 360—109 **5 Claims**

1. A head adjustment mechanism comprising:

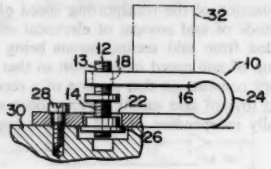
a head mount (**16**) having at least an upper portion for supporting a head and a lower portion secured to a base member, said upper and lower portions being biased in opposite directions;

an unthreaded through hole (**22**) formed in one of the upper and lower portions of the head mount;

a threaded hole (**18**) formed in the other of the upper and

lower portions of the head mount and in substantial alignment with said through hole (22);

at least one adjustment screw (12) having two oppositely extending male threaded sections (13, 14) cut in the same direction but at different pitches, one of said male threaded sections of said adjustment screw (12) being threadably engaged with said threaded hole (18) and the



other of said male threaded sections extending through said through hole (22) in an unthreaded state with respect to said through hole, said through hole (22) being larger than the outer diameter of said other male threaded section; and

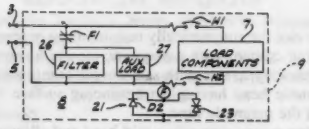
a nut (26) above the portion of the head mount in which said through hole (22) is formed, said nut (26) being in screw engagement with said other male threaded section.

4,340,920

MINE VEHICLE SAFETY APPARATUS

Ronald P. Gill, Nashville; Dempsey G. Tucker, Mascoutah, and John E. Hull, Jr., Sparta, all of Ill., assignors to Peabody Coal Company, St. Louis, Mo.

Filed Mar. 30, 1981, Ser. No. 249,078
Int. Cl.³ H02H *3/00*
U.S. Cl. 361—49 **9 Claims**



1. A mine safety system for use with a direct current power supply delivering power via a pair of conductors to the direct current load components of mining apparatus which includes a conductive frame electrically isolated from ground and normally isolated from at least one of the conductors, comprising:

means for transmitting an alternating current signal of a predetermined frequency over the pair of conductors to the mining apparatus;

a filter at the mining apparatus in a shunt circuit with the load components and thereby being connected to said transmitting means, the filter passing the predetermined frequency signal;

means for monitoring the impedance of the electrical load on the transmitting means at the predetermined frequency;

means responsive to the monitoring means for stopping the delivery of power from the power supply to the mining apparatus upon the impedance of the electrical load on the transmitting means at the predetermined frequency exceeding a predetermined level, said predetermined level exceeding the impedance of the shunt combination of the filter and load components; and

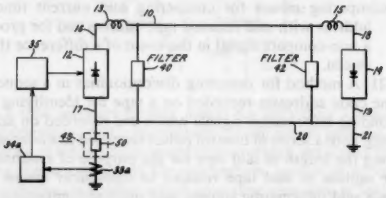
means responsive to the flow of significant current to the mining apparatus frame for disconnecting said filter from said transmitting means, thereby to increase the impedance of the electrical load on the transmitting means at the predetermined frequency to above the predetermined level, whereby delivery of power from the power supply to the mining apparatus is stopped.

4,340,921

HVDC POWER TRANSMISSION SYSTEM WITH METALLIC RETURN CONDUCTOR

Robert H. Lasseter, Swarthmore, Pa., assignor to General Electric Company, Philadelphia, Pa.

Continuation of Ser. No. 908,331, May 17, 1978, abandoned.
This application Oct. 20, 1980, Ser. No. 198,340
Int. Cl.³ H02H *7/10*
U.S. Cl. 361—56 **6 Claims**



1. In a high voltage d.c. power transmission system comprising: (i) a high voltage line, (ii) a first converter at one end of said line having first and second d.c. terminals of opposite polarity, the first terminal being connected to said line, (iii) a second converter at the opposite end of said line having first and second d.c. terminals of opposite polarity, said first terminal of the second converter being connected to said line, and (iv) a metallic return conductor interconnecting said second d.c. terminals of the two converters, the combination of:

(a) means for connecting said second terminal of said second converter to earth ground at said second terminal,

(b) means insulating said metallic return conductor from earth ground except for the earth ground connection defined hereinabove in (a), thereby causing said second terminal of said first converter to be floating with respect to d.c. under steadystate conditions so as to allow voltages of several thousand volts or more to be developed on said metallic return conductor at said second terminal of the first converter,

(c) said metallic return conductor having no capacitor connected from earth ground thereto of a size capable of effectively limiting the voltage thereon during operating transients on the system, and

(d) a valve-type surge arrestor connected between the second terminal of said first converter and earth ground, said surge arrestor having a primarily zinc-oxide valve element and no gap in series therewith, said valve element being characterized by (i) substantial non-conductance of currents therethrough until the voltage thereacross reaches a predetermined protective level, and (ii) an ability to return to its substantially non-conducting state when the voltage thereacross drops to a seal-off level close to said protective level,

(e) said insulating means of (b) hereinabove and said surge arrestor of (d) hereinabove, during normal operation of said converters, providing, at all locations along said metallic return conductor except at the connection of (a) hereinabove, a high impedance to normal harmonic currents generated by operation of said converters and attempting to flow through said connection of (a), thereby effectively limiting the flow between said converters through earth ground of said normal harmonic currents,

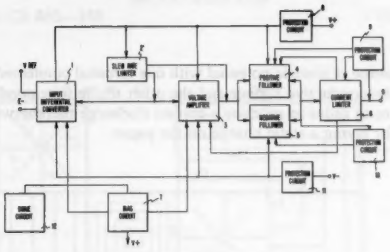
(f) the surge arrester having a protective level that is reached by the overvoltages produced on said return conductor by normal operating transients of the system.

4,340,922

INTERFACE CIRCUIT IN CONFORMITY WITH EIA STANDARDS AND IMPLEMENTED WITH AN OPERATIONAL AMPLIFIER-LIKE CIRCUIT

Francois X. Delaporte, Cros de Cagnes; Gerard M. Lebesnerais, Perthes, and Jean-Pierre Pantani, Nice, all of France, assignors to International Business Machines Corp., Armonk, N.Y.

Filed Nov. 21, 1980, Ser. No. 208,959
Claims priority, application France, Nov. 28, 1979, 79 29808
Int. Cl.[3] H02H *9/04*
U.S. Cl. 361—91 12 Claims



1. An interface circuit utilizing the stages of an operational amplifier circuit with said stages including an input differential converter stage having two input terminals E− and E+ and an output terminal coupled to a frequency compensation stage, said operational amplifier further including a voltage amplifier stage coupled to said frequency compensation stage and to positive and negative voltage follower stages with latter stages coupled via current limiting means to output terminal means, the improvement comprising;

reference voltage means coupled to one of said two input terminals E− and E+;

protection circuit means including first unilateral conducting means series connected with the positive terminal of said supply voltage and arranged to protect said operational amplifier circuit stages from positive and negative overvoltages in excess of the supply voltage occurring at said output terminal means and second unilateral conducting means coupled between said output terminal means and said first unilateral conducting means so as to protect said positive voltage follower stage and said current limiting means from positive overvoltages; and

constant current bias circuit means coupled to bias said operational amplifier circuit stages at a constant bias voltage independent of overvoltages in said supply voltage.

4,340,923

ELECTRICAL CIRCUIT PROTECTOR

Albert Bazarian, Lake Forest; John W. Scannell, Glenview, and Clifford H. Andersen, Park Ridge, all of Ill., assignors to General Instrument Corporation, New York, N.Y.

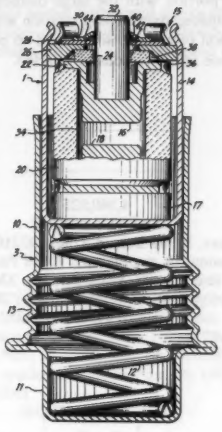
Filed Mar. 12, 1981, Ser. No. 243,198
Int. Cl.[3] H02H *1/04, 3/22*
U.S. Cl. 361—120 12 Claims

1. Apparatus for protecting a circuit from electrical overload comprising:

(a) an electrically conductive casing;

(b) a gas filled surge arrestor situated within said casing and having first and second conductive electrodes spaced apart to provide a spark gap thereacross and a hermetically sealed gaseous environment in the region of said spark gap;

(c) an additional electrode spaced from and axially aligned with said gas filled surge arrestor, said first and additional electrodes being separated by an air gap so as to form an air gap surge arrestor and said second and additional electrodes being operatively electrically connected to said casing;



(d) discharge means comprising a high dielectric ceramic, sandwiched between and in contact with said first and additional electrodes, for causing ions to be emitted into said air gap in the presence of a predetermined electric potential across said air gap; and

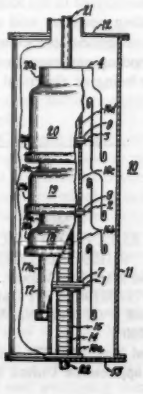
(e) fastener means to maintain said sandwiched relation.

4,340,924

GRADING MEANS FOR HIGH VOLTAGE METAL ENCLOSED GAS INSULATED SURGE ARRESTERS

James S. Kresge, Pittsfield, and Eugene C. Sakshaug, Lanesborough, both of Mass., assignors to General Electric Company

Filed Oct. 27, 1980, Ser. No. 200,931
Int. Cl.[3] H02H *9/04*
U.S. Cl. 361—127 7 Claims



1. A surge arrester assembly having graded capacitance comprising:

a plurality of zinc oxide varistor discs arranged in a stack provided with a line connection at one end and a ground connection at an opposite end;

a metal housing coextensive with said varistor stack; and

a succession of capacitor shields encompassing said varistor stack, each said shield electrically connected to a point in the portion of said stack encompassed thereby, some of said shields having a large diameter portion and a small diameter portion with the large diameter portion of one shield in spaced overlapping relation with the small diameter portion of a successive shield to provide intershield capacitance at the regions of overlap.

4,340,925

SAFETY LOCKS

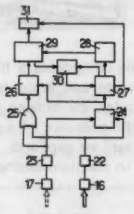
Jacques Lewiner, 5, rue Bory d'Arnex, 92210 Saint-Cloud, and Claude Hennion, 18, rue Flatters, 75005 Paris, both of France

Filed Jan. 21, 1981, Ser. No. 226,761

Claims priority, application France, Jan. 25, 1980, 80 01673

Int. Cl.³ H01H *47/00*

U.S. Cl. 361—172 **19 Claims**



1. Safety lock comprising at least one bolt adapted to cooperate with a suitable bolt clasp and at least one barrel adapted to receive a rotary actuating key, the actuation of the bolt requiring prior unlocking of this bolt ensured by applying to the key lodged in a barrel a sequence of at least angular solicitations whose characteristics correspond to at least one predetermined code memorised in the lock, means being provided to utilise for decoding purposes said sequence of solicitations and to ensure the consequent unlocking of the bolt, said means for utilising for decoding purposes the sequence of solicitations exerted on the key being of electrical type.

4,340,926

DEVICE FOR ELECTROSTATICALLY CHARGING SHEET MATERIAL

John M. Payne, 36a High St., Maxey, Peterborough, England

PCT No. PCT/GB79/00198, § 371 Date Jul. 16, 1980, § 102(e) Date Jul. 16, 1980, PCT Pub. No. WO80/01112, PCT Pub. Date May 29, 1980

PCT Filed Nov. 21, 1979, Ser. No. 198,950

Claims priority, application United Kingdom, Nov. 23, 1978, 45805/78

Int. Cl.³ H01T *19/00*

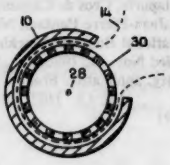
U.S. Cl. 361—229 **11 Claims**

1. In a photographic copier, a device for charging paper by corona discharge, comprising:

a cylindrical housing defining a cylindrical cavity and having a conductive internal surface;

an inlet and an outlet to allow the paper to be introduced and extend around said internal surface;

a wire conductor extending along the axis of the cylindrical housing and insulated from the conductive internal surface thereof; and



a source of electric potential with one terminal connected to the conductive surface and the other to the wire conductor in order to produce a corona discharge therebetween for laying a static charge on the paper.

4,340,927

Patent Not Issued For This Number

4,340,928

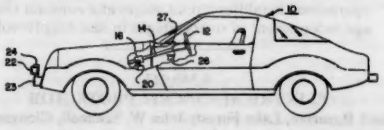
ROTATABLE VEHICLE HEADLIGHTS

Thomas Hohmann, Jr., 1770 Ferguson Rd., 206 Fox Croft, Allison Park, Pa. 15101

Filed Jul. 31, 1980, Ser. No. 174,347

Int. Cl.³ B60Q *1/12*

U.S. Cl. 362—49 **7 Claims**



1. A rotatable vehicle headlight system comprising:

(a) a mechanical linkage adapted to fit a vehicle's steering column in a manner so that movement of the steering column will activate the mechanical linkage;

(b) a first potentiometer attached to the mechanical linkage in a manner so that its resistance will change when the linkage is activated;

(c) at least one DC motor electrically connected to the first potentiometer;

(d) a second potentiometer electrically connected to the first potentiometer and mechanically connected to one of the D.C. motors;

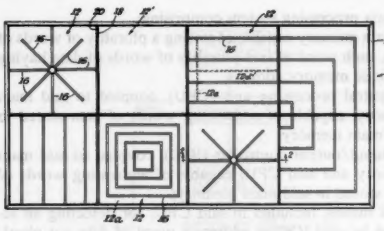
(e) at least one reflector pivotably connected to each DC motor;
(f) at least one light bulb mounted within each reflector;
(g) a power source electrically connected to the light bulbs and DC motors; and
(h) a switch electrically connected to the power source.

4,340,929

ILLUMINATED PORTABLE FLOOR

Robert S. K. Konikoff, North Miami Beach; Richard G. Rudolph, Miami, and George H. Gill, North Miami, all of Fla., assignors to Sico Incorporated, Minneapolis, Minn.

Filed Dec. 10, 1979, Ser. No. 101,716
Int. Cl.[3] F21S 1/02
U.S. Cl. 362—153 5 Claims



1. An illuminated portable dance floor for use in conjunction with light energizing apparatus comprising:
a plurality of interlocking floor sections having top and bottom surfaces and means for coupling said sections together to create a continuous floor surface of adjacent sections,
at least one illuminated segment embedded in any one of said sections, light from said segments being visible from said top surface,
each section including electrical connecting means for supplying power to said segments in that section and for supplying power to at least one adjacent section, and
said connecting means being located to engage like means on adjacent sections simultaneously with the joining of said coupling means.

4,340,930

LIGHT ASSEMBLY FOR ARCHERS ARROW

Sam Carissimi, 22731 Sunnyside, St. Clair Shores, Mich. 48080

Filed Aug. 29, 1980, Ser. No. 182,491
Int. Cl.[3] F21L 7/00
U.S. Cl. 362—204 12 Claims

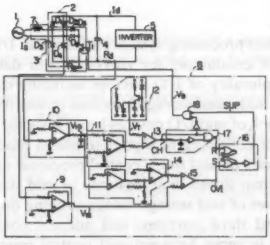
1. In an archers arrow having an elongated body, a head, fletching and a nock;
there being a bore in said body adjacent said fletching;
a sleeve on one end of and aligned with said nock, frictionally projected into said body within said bore;
said nock being of a light transmitting plastic material and having a bore adjacent its one end;
a normally open electrical circuit including a lamp and a battery assembly nested within said sleeve and body, with said lamp positioned within said nock bore;
and a switch means on said arrow adapted to close said circuit.

4,340,931

POWER SUPPLY SYSTEM

Tsunehiro Endo, Hitachiota, and Humio Tazima, Ibaraki, both of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Nov. 28, 1980, Ser. No. 211,289
Claims priority, application Japan, Nov. 30, 1979, 54-155511; Feb. 5, 1980, 55-12061
Int. Cl.[3] H02M 1/14
U.S. Cl. 363—44 8 Claims



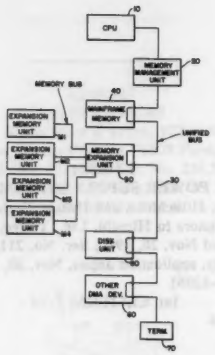
1. A power supply system comprising:
an AC power supply operating at a predetermined frequency;
a rectifier circuit including rectifier elements connected to said AC power supply;
a load coupled to a DC output of said rectifier circuit to be applied with output power of said rectifier circuit;
an inductance element connected between said AC power supply and an AC input terminal of said rectifier circuit;
a switching circuit including rectifier elements connected by a switching element between the AC input terminal of said rectifier circuit and the DC output of said rectifier circuit;
an oscillation circuit for oscillating at a frequency higher than the frequency of said AC power supply;
averaging means coupled to said load for providing a weighted voltage signal in accordance with an average DC current flowing in said load;
a comparator coupled to an output of said oscillation circuit and to an output of said averaging means for comparing the output voltage of said oscillation circuit with said weighted voltage signal; and
a circuit coupled between an output of said comparator and said switching element for determining a duty cycle for ON and OFF operations of said switching element on the basis of an output signal of said comparator.

4,340,932

DUAL MAPPING MEMORY EXPANSION UNIT

Richard E. Bakula, Indialantic; Dennis L. Maly, and James H. Weemhoff, both of Melbourne, all of Fla., assignors to Harris Corporation, Cleveland, Ohio

Filed May 17, 1978, Ser. No. 906,830
Int. Cl.[3] G06F *13/00*
U.S. Cl. 364—200 22 Claims



1. In a data processing system including an I/O bus having a plurality of conductors for carrying both data and address signals; a plurality of I/O devices including devices forming physically addressed storage locations connected to said bus in parallel, each of said I/O devices being assigned to a respective address slot consisting of a predetermined block of the available addresses on said bus; a central processor unit for processing a program stored in at least one of said storage locations, the addresses of said storage locations being divided into first, second, and third portions; and address conversion means connected in series between said central processor unit and said bus for transmitting onto the bus, in response to a virtual address from said central processor unit, a physical address for selecting a storage location; the improvement comprising

a plurality of expansion memory units providing a total number of memory locations exceeding the number of physical addresses making up an address slot on said bus;

a memory expansion unit connected to said bus in parallel with said I/O devices and having an address slot assigned thereto for converting the block of physical addresses corresponding to said address slot on said bus into an expanded range of physical addresses for selecting said memory locations in said expansion memory units; and

means for connecting the respective expansion memory units to said memory expansion unit;

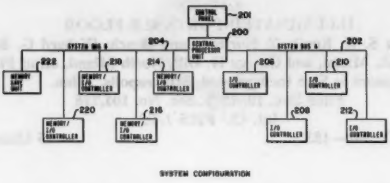
said memory expansion unit including a mapping register in the form of a random access memory storing the base physical address for a block of consecutively addressed memory locations, said mapping register being responsive to the first portion of said physical address received from said bus for reading out a selected base physical address; and adder means for combining the output of said mapping register and the second portion of the physical address received from said bus to produce an intermediate address; at least a portion of said intermediate address juxtaposed with the third portion of said physical address received from said bus being forwarded to said expansion memory units as an expanded physical address.

4,340,933

DATA PROCESSING SYSTEM HAVING CENTRALIZED NONEXISTENT MEMORY ADDRESS DETECTION

Ming T. Miu, Chelmsford; John J. Bradley, Framingham; William Panepinto, Jr., Tewksbury, and Jian-Kuo Shen, Watertown, all of Mass., assignors to Honeywell Information Systems Inc., Waltham, Mass.

Filed Feb. 12, 1979, Ser. No. 8,010
Int. Cl.[3] G06F *11/00, 13/00*
U.S. Cl. 364—200 2 Claims



2. A data processing system comprising:

A. a main memory capable of storing a plurality of words of data, each word of said plurality of words of data having a unique memory address;

B. a central processing unit (CPU), coupled to said main memory, capable of addressing words of data stored in said main memory;

C. an input/output controller (IOC), coupled to said main memory and said CPU, capable of addressing words of data stored in said main memory;

D. first means, included in said CPU, for detecting an attempt by said IOC to address a word of data not physically present in said main memory;

E. second means, included in said first means, for detecting an attempt by said CPU during the execution of a softwave instruction to address a word of data not physically present in said main memory;

F. address switch means, coupled to said first means, for indicating the highest address of a last word of data physically present in said main memory;

G. bus means, included in said CPU and coupled to said IOC and said first means, for carrying a set of signals corresponding to said memory address from said IOC or said each memory address generated by said CPU;

H. comparator means, included in said first means and coupled to said bus means, for continually comparing said set of signals with the indication of the highest address of said last word of data physically present in said main memory from said address switch means;

I. bistable means, having a data input, a clock input, a reset input and an output, included in said first means and with the data input coupled to the output of said comparator means, for storing an indication of an attempt by said IOC or said CPU to address a word of data not physically present in said main memory;

J. signal means, coupled to said output of said bistable means and said IOC, for transmitting said indication of an attempt to address a word of data not physically present in said main memory to said IOC;

K. memory cycle indication means, coupled to said clock input of said bistable means, for clocking said bistable means in a memory cycle when said bus means is carrying said set of signals corresponding to said memory address;

L. first reset means, included in said first means and coupled to said reset input of said bistable means, for resetting said bistable means prior to the end of said memory cycle if said memory address came from said IOC;

M. interrupt means, coupled to said output of said bistable means and said CPU, for interrupting the execution by said CPU of a softwave instruction if said bistable means still indicates after the end of said memory cycle that an

attempt to address a word of data not physically present in said main memory has occurred; and

N. second reset means, included in said first means and coupled to said reset input of said bistable means, for resetting said bistable means in response to the interruption by said interrupt means of the execution of a softwave instruction by said CPU.

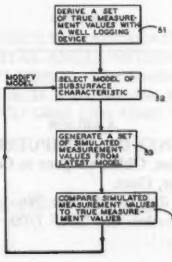
4,340,934
METHOD OF GENERATING SUBSURFACE CHARACTERISTIC MODELS

Francis F. Segesman, Ridgefield, Conn., assignor to Schlumberger Technology Corporation, New York, N.Y.

Continuation of Ser. No. 177,940, Sep. 7, 1971, abandoned. This application Mar. 12, 1979, Ser. No. 19,918

Int. Cl.³ G06F *15/20*; E21B *47/00*

U.S. Cl. 364—422 **26 Claims**


DERIVE A SET OF TRUE MEASUREMENT VALUES WITH A WELL LOGGING DEVICE
51
MODIFY MODEL
SELECT MODEL OF SUBSURFACE CHARACTERISTIC
52
GENERATE A SET OF SIMULATED MEASUREMENT VALUES FROM LATEST MODEL
53
COMPARE SIMULATED MEASUREMENT VALUES TO TRUE MEASUREMENT VALUES
54

1. A well logging method of plotting the variation with depth of a characteristic of the earth formation adjacent a borehole to a higher vertical resolution than that of the output of a well logging device passed through the borehole to initially measure said characteristic, comprising the steps of:

(a) for each of a succession of depths in the borehole, producing a corresponding initial well logging measurement of said characteristic of the earth formation adjacent the borehole at said depth derived from a well logging device which is passed through the borehole and has a selected vertical response range and a selected vertical response characteristic,

(b) storing, in a computer storage device, a selected variation of said characteristic with depth along the borehole,

(c) generating new well logging measurements for said depths in the borehole by operating computer circuits to apply the vertical response characteristic of the well logging device to said stored selected variation of the characteristic with depth along the borehole,

(d) operating computer circuits to compare the initial and the new well logging measurements, and

(e) modifying said selected variation of the measured characteristic with depth along the borehole by operating computer circuits in accordance with the comparison to produce thereby a modified variation with depth which conforms more closely to the initial logging measurements, and plotting said modified variation of the measured characteristic of the earth formation versus depth in the borehole to thereby produce a plot having higher vertical resolution than that determined initially by the extent of the vertical response range of the well logging device, said plot approximating the variation of the measured characteristic of the earth formation with depth in the borehole more closely than a plot of the initial well logging measurements versus depth in the borehole.

4,340,935
METHOD OF TESTING THE OPERATIVENESS OF A CONTROL SYSTEM

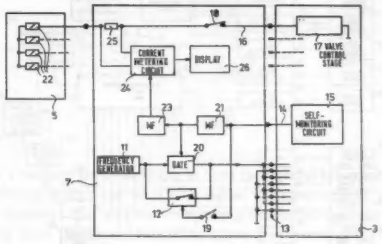
Jurgen Anlauf, Goppingen, and Wolf-Dieter Jonner, Sandhausen, both of Fed. Rep. of Germany, assignors to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

Filed Aug. 7, 1979, Ser. No. 64,625

Claims priority, application Fed. Rep. of Germany, Sep. 22, 1978, 2841220

Int. Cl.³ G06F *11/30, 15/50*

U.S. Cl. 364—426 **9 Claims**



1. A method of testing the operativeness of a negative feedback control system employing at least one feedback transducer comprising:

providing a feedback signal from the feedback transducer to control circuit means;

generating actuating signal depending on the feedback signals for actuating adjuster elements with the actuating signals; applying to the control circuit means artificially generated signals simulating those furnished by at least one feedback transducer;

applying operating voltage to the control circuit means in order to initiate a predetermined test program; monitoring the course of implementation of the test program;

at least one reinitiating the test program upon completion of the initiated test program and if no malfunction signals had been produced, but now with a predetermined malfunction simulated;

determining upon each completion of the test program the production of a malfunction signal or the absence of a malfunction signal to indicate whether a self monitoring circuit means is or is not operating correctly with respect to the malfunction simulated; and

generating a malfunction signal upon detection of a malfunction exhibited by the circuit control means as an output signal.

4,340,936
MICROPROCESSOR NAVIGATIONAL AID SYSTEM

George R. Mounce, 18 Bridle Path, Willowdale, Ontario, Canada (M2L 1C8)

Filed Jul. 3, 1980, Ser. No. 165,840

Int. Cl.³ G01C *21/10*

U.S. Cl. 364—443 **13 Claims**

1. A navigational aid system for use in navigating a vessel toward a destination mark whose course and distance are known, comprising:

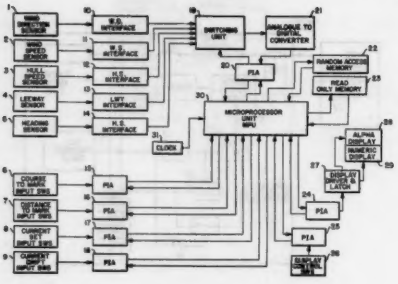
(a) means for measuring variable navigational parameters defining the motion of the vessel relative to the water, the motion of the wind relative to the vessel and the compass heading of the vessel;

(b) means for converting the parameters sequentially into digital data inputs;

(c) addressable memory means for storing data in digital form;

(d) manually settable fixed parameter means for inserting information defining said course and distance to said destination mark and for defining current drift and set, along said course the information being stored in the addressable memory means in the form of digital data inputs;

(e) a microprocessor having input and output ports, and having a main routine and subroutines for calculating



navigational output data from said measured and fixed data inputs and for continuously updating and storing said input and output data as digital data in said addressable memory means;

(f) a digital display operative to display selected digital data; and

(g) multiple actuatable selection means corresponding respectively with the various input and output digital data stored in said memory means, said selection means being connected with the microprocessor to be sequentially polled thereby during said routines, and the microprocessor being operative to transfer that digital data which corresponds with each actuated selection means for display on said digital display.

4,340,937

AUTOMATIC CONTROL FOR A PELLET PRODUCING APPARATUS

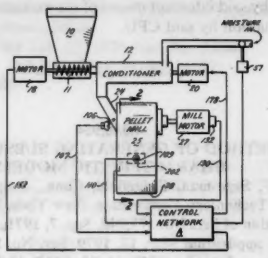
Joseph A. Volk, Jr., Florissant, Mo., assignor to Beta Corporation of St. Louis, Bridgeton, Mo.

Filed Apr. 14, 1980, Ser. No. 139,841

Int. Cl.³ G05B *1/02, 13/02*

U.S. Cl. 364—468 **7 Claims**

1. An automatic control system for a pelleting apparatus, the apparatus including a pellet producing means and means for feeding a supply of material to the producing means, said control system comprising means for sensing the temperature of the material near the input of the producing means, means for sensing the temperature of the material near the output of the producing means, and means for measuring the difference between said temperatures (ΔT mill), and means for automatically controlling the proportion of selected ingredients of the material before entering the producing means in response to



said sensing means to maintain ΔT mill to within a prescribed range.

4,340,938

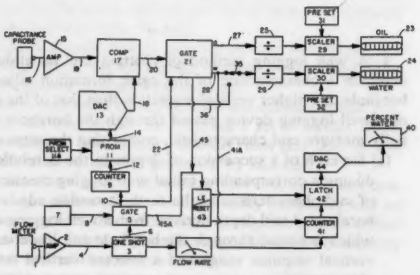
NET OIL COMPUTER

John B. Rosso, Tulsa, Okla., assignor to Combustion Engineering, Inc., Windsor, Conn.

Filed Jul. 7, 1980, Ser. No. 166,207

Int. Cl.³ G01F *1/00*

U.S. Cl. 364—510 **4 Claims**



1. A net oil computer, including,

a flow meter for sensing the rate of flow of a mixture of oil and water and establishing an output of voltage pulses with a frequency representative of the rate of flow,

an electronic clock establishing an output of voltage pulses at a constant frequency substantially greater than the frequency of the flow pulses,

a first gate receiving both the clock pulses and the flow pulses arranged to divide the flow pulses into trains of clock pulses,

a binary counter receiving the clocked trains of pulses and establishing each train as a separate output,

a prom circuit connected to the binary counter programmed to receive each clocked pulse train in the form of binary data and establishing a nonlinear output of the binary data,

a digital-to-analog converter connected to the prom circuit to receive the output of the prom circuit and convert it to a voltage ramp output,

a primary element capacitance arranged to respond to the flowing mixture of oil and water to establish an analog signal output with the non-linearity matching that of the prom output,

a comparing circuit connected to the capacitance circuit and the pulse train analog circuit to establish an output divided by each portion of the ramp as determined by the value of the capacitance circuit signal,

a second gate receiving the clocked pulse trains and the output of the comparison circuit and dividing each train into two quantitative parts proportional to the division of the ramp analog signal,

and means to manifest each portion of the pulse train divided by the gate as the quantities of oil and water of the mixture sensed by the capacitance.

4,340,939

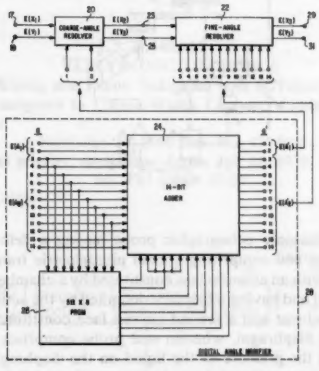
SOLID-STATE RESOLVER APPARATUS INCLUDING DIGITAL ANGLE MODIFIER

Arthur Mayer, 83-57 118th St., Kew Gardens, N.Y. 11415

Filed Jun. 24, 1980, Ser. No. 162,672

Int. Cl.³ G06J *1/00*; G06G *7/22*

U.S. Cl. 364—603 **7 Claims**



7. Resolver apparatus for receiving simultaneously a vectorial input signal and an angular input signal, said vectorial input signal having first and second components corresponding respectively to the orthogonal components of an input vector and said angular input signal corresponding to an angle of rotation, said apparatus generating a vectorial output signal having first and second components corresponding respectively to the orthogonal components of an output vector produced by rotation of said input vector through said angle of rotation, comprising:

memory means for receiving said angular input signal and generating at its output a correction signal, said correction signal being a function of said angular input signal;

adding means for adding said angular input signal and said correction signal to produce a modified angular signal; and

resolver means for receiving said vectorial input signal and said modified angular signal, said modified angular signal causing said resolver means to rotate said vectorial input signal through said angle of rotation.

4,340,940

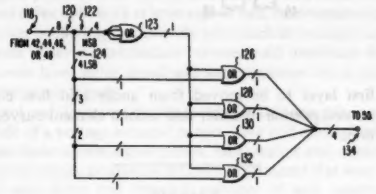
HARDWARE REDUCTION BY TRUNCATION OF SELECTED NUMBER OF MOST SIGNIFICANT BITS FOR DIGITAL VIDEO SYSTEM USING SUBSAMPLING AND ADAPTIVE RECONSTRUCTION

James J. Williams, Jr., Plainsboro, and Robert A. Dischert, Burlington, both of N.J., assignors to RCA Corporation, New York, N.Y.

Filed Aug. 26, 1980, Ser. No. 181,425

Int. Cl.³ G06F *7/02*

U.S. Cl. 364—745 **8 Claims**



1. In a method for comparing at least two plural bit numbers representing a digitized television signal with a reference plural bit number, said method comprising determining if any of selected most significant bits of numbers representing the differences between said two plural bit numbers and said reference plural bit number respectively has a selected state, and setting the remaining least significant bits of the number with the most significant bits having said selected state to said selected state.

4,340,941

Patent Not Issued For This Number

4,340,942

PERMALLOY-FIRST BUBBLE SWITCH

Otto Voegeli, Morgan Hill, Calif., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Dec. 1, 1980, Ser. No. 211,599

Int. Cl.³ G11C *19/08*

U.S. Cl. 365—16 **10 Claims**

1. A bubble switching device comprising:

a first layer of bubble domain supporting material,

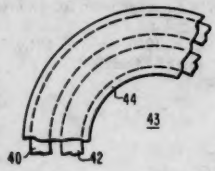
a spacer layer on said first layer,

a first propagation element superimposed on said spacer layer, said first element having a substantially curved portion,

a second propagation element superimposed on said first layer, said second element having a substantially curved portion that is in spaced relation with and substantially concentric with said first element curved portion, and

a conductor element superimposed on said first and second propagation elements, said conductor element having a

substantially curved portion concentric with said first and second element curved portions wherein passing current through said conductor element permits a bubble in said



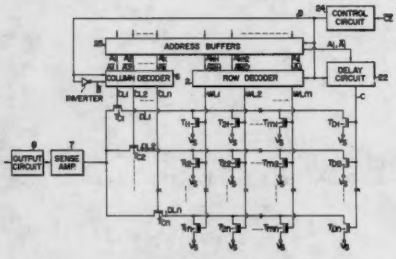
first layer to be moved from under said first element curved portion to under said second element curved portion.

4,340,943

MEMORY DEVICE UTILIZING MOS FETS

Masamichi Asano, Tokyo, and Hiroshi Iwahashi, Yokohama, both of Japan, assignors to Tokyo Shibaura Denki Kabushiki Kaisha, Japan

Filed May 28, 1980, Ser. No. 153,951
Claims priority, application Japan, May 31, 1979, 54-68033, 54/68034, Aug. 10, 1979, 54/101182
Int. Cl.[3] G11C *7/00, 11/40*
U.S. Cl. 365—194 16 Claims



1. A memory device utilizing metal oxide semiconductor field effect ransistors (MOS FETs) formed in an electrically selectable semiconductor chip, comprising:

a plurality of row lines through which input signals are supplied;

a row decoder for selecting any one of said row lines;

a plurality of column lines through which output signals are supplied;

a column decoder for selecting any one of said column lines;

a plurality of memory cells connected to said row and column lines in such a manner that each receives an input signal through the row line to which it is connected and supplies an output signal through the column line to which it is connected;

a signal sensing circuit connected to said column lines for detecting an output signal supplied thereon and for supplying an output circuit with a readout signal in response thereto;

a first potential source connected to said column lines through a load element for supplying said column lines with a reference voltage potential;

a second potential source connected to said memory cells for supplying said memory cells with a second potential source voltage; and

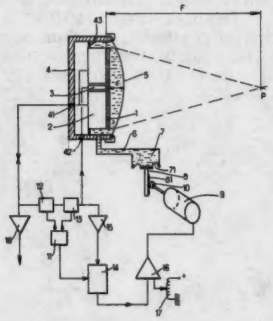
means for holding said column lines at a potential substantially equal to the voltage supplied from said second potential source, for the period during which said semiconductor chip is not in a selected state and for an initial portion of the period during which said semiconductor chip is in a selected state.

4,340,944

ULTRASONIC ECHOGRAPHIC PROBE HAVING AN ACOUSTIC LENS AND AN ECHOGRAPH INCORPORATING SAID PROBE

Jacques Dory, Villenoy-les-Meaux, France, assignor to CGR Ultrasonic, Villenoy-les-Meaux, France

Filed Mar. 6, 1981, Ser. No. 241,111
Claims priority, application France, Mar. 7, 1980, 80 05200
Int. Cl.[3] G01S *15/89*
U.S. Cl. 367—96 7 Claims



1. An ultrasonic echographic probe having a deformable acoustic lens and comprising a main piezoelectric transducer associated with an acoustic lens constituted by a chamber filled with a liquid and having a first face delimited by the active face of the transducer and a second curved face constituted by a deformable diaphragm, wherein said probe comprises means for varying the pressure of the liquid on the diaphragm as a function of a control signal, an electroacoustic means for measuring the thickness of the lens by reflection of ultrasonic pulses, and means for comparing the thickness-measuring signal generated by said electroacoustic means with a signal which is representative of a reference value in order to generate a difference signal which constitutes said control signal.

4,340,945

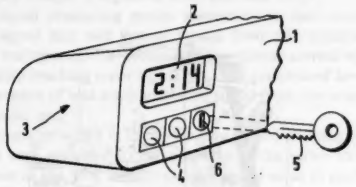
OPERATING APPARATUS FOR AN APPLIANCE OF A MOTOR VEHICLE

Diethard Gothe, North Eltham, Australia, assignor to VDO Adolf Schindling AG, Fed. Rep. of Germany

Filed Jan. 28, 1980, Ser. No. 115,774
Claims priority, application Fed. Rep. of Germany, Mar. 9, 1979, 2909258
Int. Cl.[3] G04F *8/00;* G04B *47/00;* B62D *45/00;* B60Q *1/00*
U.S. Cl. 368—6 10 Claims

1. Operating apparatus for an appliance with electrical indication, particularly an electrical digital clock, of a motor vehi-

cle with electric push-button switch means, said apparatus comprising a recess for receiving a normally detached key-like element, a contact switch comprising a movable electrical contact element and a cooperating fixed electrical contact element both associated with the electrical circuit controlled by said push-button switch, said movable contact element



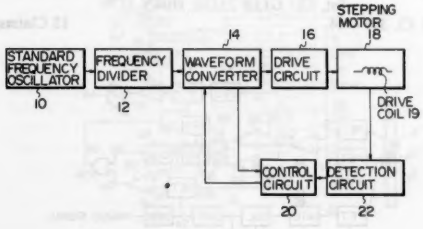
having at least a portion thereof positioned in said recess, whereby said key-like element when inserted into said recess into operative association with said movable contact element determines the state of operativeness of said electrical circuit which may be used to correct the indication of said electrical digital clock or other appliance and is controlled by said push-button switch.

4,340,946

ELECTRONIC TIMEPIECE

Fumio Kanno, and Fumio Nakajima, both of Tokorozawa, Japan, assignors to Citizen Watch Company Limited, Tokyo, Japan

Filed Jul. 24, 1980, Ser. No. 171,914
Claims priority, application Japan, Jul. 27, 1979, 54-94933
Int. Cl.³ G04B *19/00*
U.S. Cl. 368—76 **8 Claims**



1. In an electronic timepiece having a source of a standard frequency timebase signal, frequency divider means for producing a unit time signal and a plurality of timing signals by frequency division of said standard frequency timebase signal, drive circuit means responsive to said unit time signal for producing a drive signal, and a stepping motor having a drive coil and a rotor which is periodically rotated in response to said drive signals applied to said drive coil, the improvement comprising:

waveform converter circuit means coupled between said drive circuit and said frequency divider means and coupled to receive said unit time signal and said timing signals, for generating a plurality of drive input signals, each comprising a train of pulses synchronized with said unit time signal, for driving said stepping motor at a plurality of different drive power levels through said drive circuit means, said drive input signals including a minimum drive power level input signal and a maximum drive power level input signal, and at least one intermediate drive power level input signal, a selected one of said input signals being applied from said waveform converter circuit means to said drive circuit means, said drive circuit means being operable to establish a short-circuit condition across said drive coil in the intervals between periodic applications of said selected drive input signals to said drive circuit means, said waveform converter circuit means further producing at least one interruption signal pulse following each of said drive input signal pulses, said drive circuit means being responsive to said interruption signal pulse for interruption said short-circuit condition of said drive coil, with at least two of said interruption signal pulses occurring successively after each drive input signal pulse of level intermediate between said maximum drive power level input signal and said minimum drive power level input signal;

control and detection circuit means for detecting the amplitude of a voltage induced in said drive coil during each of said interruption signal pulses, said control and detection circuit means producing a first control signal if at least one of said drive coil .induced voltages of said successive interruption signal pulses occurring after said intermediate drive input signal pulse is above a predetermined threshold level, and producing a second control signal if a remaining one of said drive coil induced voltages during said successive interruption signal pulses is above said predetermined threshold level;

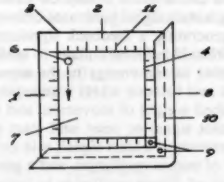
said waveform converter circuit means being responsive to said first control signal for selecting a drive input signal of level lower than the drive input signal currently being applied, for application to said drive circuit means, and said waveform converter circuit means being further responsive to said second control signal for selecting a drive input signal of level higher than the drive input signal currently being applied, for application to said drive circuit means.

4,340,947

DUAL TIMING APPARATUS

Lyndon O. Barton, 26 Shull Dr., Newark, Del. 19711

Filed Jan. 30, 1981, Ser. No. 231,147
Int. Cl.³ G04F *1/04*
U.S. Cl. 368—93 **6 Claims**



1. A timing apparatus comprising an enclosure having a rectangular cavity filled with a fluid, a body that is free to move within said fluid and a base wherein

a. said fluid-filled cavity forms a fluid layer, rectangular in shape, with uniform thickness sufficient to permit freedom of movement of said body in at least two directions,

b. said body has a density slightly different from that of the fluid,

c. said enclosure is constructed of a material such that said movement of said body is completely visible anywhere within said fluid-filled cavity,

d. said base is right angular so that on a level surface, it is

rotatable in a vertical plane from one leg to the other to restrict said apparatus to just two stable operating positions.

e. said enclosure is attached to said base such that the legs of said base are parallel to adjacent sides of said rectangular cavity,

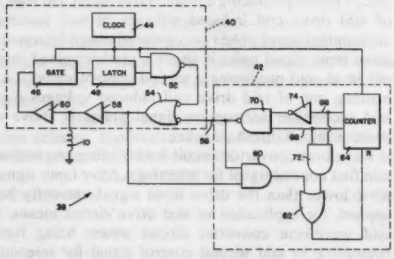
f. said rectangular cavity, when in one of said stable positions or the other, has a normally upright orientation with adjacent sides horizontal and vertical so that said body, under influence of gravity or buoyancy, moves in a parallel path relative one of said adjacent sides or the other.

4,340,948

SINGLE-COIL BALANCE WHEEL FOR DRIVING A MECHANICAL MOVEMENT

John W. Goodnight, Kannapolis, N.C., assignor to General Time Corporation, Thomaston, Conn.

Filed Apr. 24, 1980, Ser. No. 143,291
Int. Cl.³ G06F *1/04;* H02K *33/10*
U.S. Cl. 368—158 **14 Claims**



1. In combination with a timepiece: a single-coil including a winding serving as a pick-up coil and a drive coil; a mechanical movement; a movable system for driving said mechanical movement including a balance wheel formed by at least one plate and a magnetic member having a magnetic north pole and a magnetic south pole carried by each said plate; means mounting each said plate for movement rotationally about an axis adjacent said coil and parallel to the axis of a central region so that said magnetic field may sweep back and forth across said winding from a position approaching one outer edge, through said central region, to a position beyond the other outer edge to induce a voltage in said winding upon each back and forth sweeping movement; and a circuit having an input connected to said coil responsive to said induced voltage, an output connected to said coil adapted to impress a feedback signal across said winding, a start signal generator connected to said output, means for generating a feedback signal substantially in synchronism with said induced voltage to which said circuit shall have responded to add energy to the movable system during the time that said balance wheel is sweeping at least at a minimum prescribed weight of movement and at the same time to provide a reset signal to reset said start signal generator to prevent generation of a start signal, said circuit further including a source of output oscillation, and a gate circuit controlled by said source of output oscillation to connect and disconnect said input and output.

4,340,949

PROCESSOR CONTROLLED VIDEO DISC SERVO SYSTEM

Kevin C. Kelleher, Plainfield, Ind., assignor to RCA Corporation, New York, N.Y.

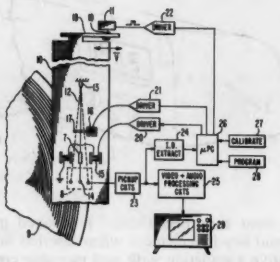
Filed Jul. 31, 1980, Ser. No. 174,030
Int. Cl.³ G11B *21/04, 3/38*
U.S. Cl. 369—33 **8 Claims**

1. A record playback apparatus for recovering prerecorded information from disc records wherein the prerecorded information is contained in information tracks and the information includes track identification numbers, said apparatus comprising:

a carriage assembly;

signal recovery means mounted to the carriage assembly and arranged to engage the disc record;

pickup circuitry cooperating with the signal recovery means for producing an electrical manifestation of the recorded information, including said track identification numbers;



means responsive to said electrical manifestation for identifying said track identification numbers and for generating a control pulse each time a predetermined number of track numbers occur in a predetermined succession; and

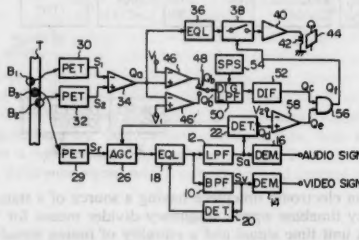
motive means mechanically coupled to the carriage assembly and responsive to said control pulses for translating the carriage in discreet steps by more than one information track radially across said disc record upon receiving each control pulse.

4,340,950

VIDEO DISC PLAYER

Minoru Kosaka, Tokorozawa, Japan, assignor to Universal Pioneer Corporation, Tokyo, Japan

Filed Oct. 10, 1980, Ser. No. 196,148
Claims priority, application Japan, Oct. 12, 1979, 54-131494; Oct. 12, 1979, 54-131495; Oct. 13, 1979, 54-132285
Int. Cl.³ G11B *21/10;* H04N *5/76*
U.S. Cl. 369—44 **13 Claims**



8. In a video-disc information reading and reproducing apparatus including a source of a reproducing signal read out from a video disc scanned by a detecting point which is deflected radially of the video disc and a signal correcting device which is operative to compensate for the attenuation of the signal level of high frequency components of said reproducing signal and which includes signal level detector means operative to produce an output signal variable with the signal level of a frequency modulated audio carrier component contained in the reproducing signal, a tracking servo system for deflecting said detecting point radially of said video disc, the tracking servo system comprising

error signal producing means operative to produce a tracking error signal which is continuously variable in magnitude with the distance between the center line of a target track on said video disc and said detecting point to be placed on said target track and which has polarities respectively corresponding to the directions in which the said detecting point is to be deflected radially of the video disc,

comparing means for comparing the output signal having a predetermined level for producing a track existance signal when the former is higher in level than the latter,

control signal producing means responsive to said tracking error signal and said output signal from said comparing means and operative to produce a loop closure control signal when said tracking error signal has a predetermined level in the presence of said track existance signal from the comparing means, and

switch means provided in the servo loop of said tracking servo system and operative to make operative the servo loop in response to the loop closure control signal so as to perform quick and smooth lock-in operation.

4,340,951

OPERATION MODE DISPLAY APPARATUS

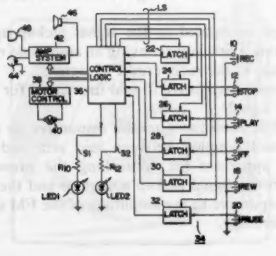
Kazuyasu Motoyama; Toshihiro Nakao; Katsumi Kanayama, and Kenzi Furuta, all of Hachioji, Japan, assignors to Olympus Optical Co., Ltd., Tokyo, Japan

Filed May 14, 1980, Ser. No. 149,926

Claims priority, application Japan, May 24, 1979, 54-64230

Int. Cl.³ G11B *27/36*

U.S. Cl. 369—53 **15 Claims**



12. An operation mode display apparatus for a multi-mode tape recorder, comprising:

first and second light emitting diodes which respectively emit light of different colors, said light emitting diodes being capable of being operated to respective light producing and non-light producing display states independently of each other; and

a single display state indicating surface in light communication with both of said light emitting diodes for indicating on said single indicating surface the display states of both of said first and second light emitting diodes corresponding to an operation mode of the tape recorder;

wherein at least three operation modes of the tape recorder are displayable by respectively different combinations of the display states of said first and second light emitting diodes as displayed on said single indicating surface.

4,340,952

AUTOMATIC DISC LOADING MECHANISM

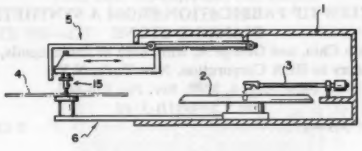
Yuji Ikedo, Tokorozawa, Japan, assignor to Pioneer Electronic Corporation, Tokyo, Japan

Filed Sep. 17, 1980, Ser. No. 187,896

Claims priority, application Japan, Sep. 17, 1979, 54-119706; Sep. 17, 1979, 54-119709

Int. Cl.³ G11B *17/04*

U.S. Cl. 369—77 **13 Claims**



1. An automatic disc loading mechanism for a disc player comprising a player body; a turntable; disc transferring means for automatically delivering a disc to said turntable and automatically delivering said disc outside of said player body, said disc transferring means including clamping means for clamping said disc at a center hole position thereof, said clamping means comprising a clamping spindle freely movable in substantially a vertical direction to a plane including the surface of said turntable and insertable into said center hole of said disc; a projecting member projectable beyond an outer wall of said clamping spindle; and drive means for driving said projecting member in a projecting direction, said projecting member being driven to clamp said disc when said clamping spindle inserted into said center hole of said disc is lifted, said projecting member being rotatably mounted in said clamping spindle, said drive means comprising a slidable member located in and slidable within an axial bore formed in said clamping spindle and being slidable in response to a predetermined outside force to rotate said projecting member in a predetermined direction and biasing means for biasing said projecting member in a direction opposite to said predetermined direction.

4,340,953

INFORMATION RECORDING MEDIUM AND RECORDING AND REPRODUCING SYSTEM USING THE SAME

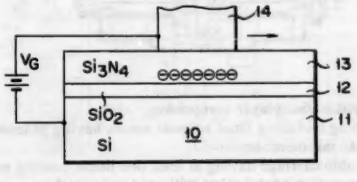
Soichi Iwamura, Fuchu; Yasuaki Nishida, Tokyo; Toshimi Yamato, Musashino; Norikazu Sawazaki; Yoshio Nishi, both of Yokohama; Masaharu Watanabe, Yokosuka, and Norio Endo, Yokohama, all of Japan, assignors to Nippon Hoso Kyokai and Tokyo Shibaura Denki Kabushiki Kaisha, Kawasaki, both of, Japan

Filed May 7, 1980, Ser. No. 147,620

Claims priority, application Japan, May 14, 1979, 54-58090

Int. Cl.³ G11B *9/06*

U.S. Cl. 369—126 **6 Claims**



1. An information recording medium comprising a semiconductor substrate, a first insulating film formed on one principal surface of said semiconductor substrate, and a second insulat-

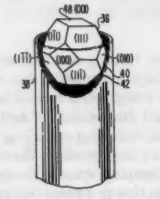
ing film formed on said first insulating film and having a charge storage function, said second insulating film having a principal surface which forms the top surface of said recording medium, wherein charges corresponding to a recording signal are passes through said first insulating film by a tunnel effect and stored in said second insulating film when a voltage corresponding to said recording signal is applied between said substrate and a recording electrode stylus which moves along said top surface.

4,340,954

STYLUS TIP FABRICATION FROM A SYNTHETIC DIAMOND STONE

Shiu-Shin Chio, and George A. Kim, both of Indianapolis, Ind., assignors to RCA Corporation, New York, N.Y.

Filed Aug. 4, 1980, Ser. No. 174,865
Int. Cl.³ G11B 3/44
U.S. Cl. 369—173 **8 Claims**



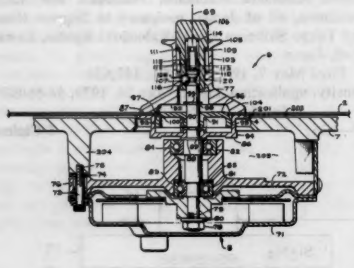
5. In a stylus tip fabricated from a synthetic diamond stone having a plurality of facets oriented along the {100} family of planes, said facets having an average surface area, the improvement comprising said entire tip being a portion of said stone bounded by a right circular cylinder having a base thereof centered along one of said facets having a surface area larger than said average surface area, said cylinder having a base diameter and height equal to about half the width of said one facet.

4,340,955

VIDEO DISC PLAYER

James E. Elliott, San Pedro, Calif., assignor to Discovision Associates, Costa Mesa, Calif.

Continuation of Ser. No. 890,770, Mar. 27, 1978, abandoned. This application Feb. 9, 1979, Ser. No. 10,870
Int. Cl.³ G11B 3/62, 17/00
U.S. Cl. 369—213 **21 Claims**



1. A video disc player comprising:

a housing including fixed support means having at least one linear rail member;

a movable carriage having at least one linear bearing means in operative engagement with said rail member;

means for controlling movement of said carriage with respect to said housing along said rail;

a motor and spindle assembly mounted on said carriage for movement therewith, said spindle having a central axis and said assembly including means for mounting a video disc about said spindle in a plane generally perpendicular to the axis of said spindle, said mounting means including a video disc support ring having a generally flat surface disposed in a plane generally perpendicular to said spindle axis and arranged to abut one side of said disc; and

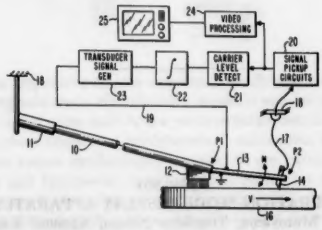
means for centering said disc about said spindle, said centering means being disposed about said spindle and having an outer surface generally forming a frustrum of a cone, which surface is arranged to engage a central aperture in said video disc thereby centering said disc with respect to said spindle axis.

4,340,956

MINIMUM TRACKING FORCE STYLUS

Michael E. Miller, Indianapolis, Ind., assignor to RCA Corporation, New York, N.Y.

Filed Apr. 10, 1980, Ser. No. 138,882
Int. Cl.³ G11B 3/10
U.S. Cl. 369—244 **4 Claims**



1. In a record playback apparatus, of the type wherein information prerecorded in FM or phase angle modulated signal format is recovered from a record medium by means of a signal pickup apparatus engaging the record medium, said signal pickup apparatus being mounted to an arm which is compliantly suspended from a carriage mechanism, the improvement comprising:

first means connected to the signal pickup apparatus for generating a first signal having an amplitude related to the amplitude of the recovered FM signal;

second means responsive to said first signal for producing a control signal;

piezoelectric transducer means responsive to said control signal and coupled between said arm and said signal pickup apparatus for controlling the pressure applied between the signal pickup apparatus and the record medium responsive to the amplitude of the FM signal recovered thereform.

4,340,957

CARTRIDGE AND HEADSHELL ASSEMBLY

John P. Kuehn, Brookfield Center, Conn., assignor to Audio Dynamics Corporation, New Milford, Conn.

Filed Sep. 25, 1980, Ser. No. 190,801
Int. Cl.³ G11B 21/24
U.S. Cl. 369—256 **5 Claims**

1. A phonograph cartridge and head shell assembly for attachment to a tone arm, said assembly comprising:

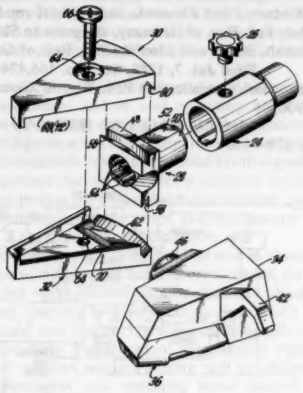
a fixed part releasably coupled to said tone arm,

a movable part joined to said fixed part, said movable part including a stylus and transducer assembly,

means for permitting said movable part to be laterally angularly displaced with respect to said fixed part, and

single means for permitting said movable part to be longitudinally and vertically angularly displaced with respect to said fixed part, said single means including first and second clamp means, at least one of said first and second clamp

means having a recess, the other of said first and second clamp means cooperating with said at least one clamp means to define an elongated slot, said movable part having a projection receivable within said elongated slot,



means for retaining said projection within said elongated slot, and means for locking said movable means against rotation about said projection and against displacement along said slot.

4,340,958

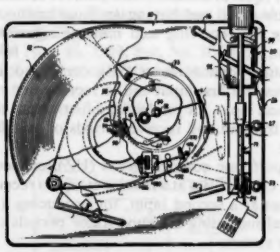
AUTOMATIC RECORD CHANGER

James T. Dennis, P.O. Box 15100, Oklahoma City, Okla. 73155, and George Kolomayets, Chicago, Ill., assignors to James T. Dennis, Oklahoma City, Okla.

Division of Ser. No. 9,254, Feb. 5, 1979, Pat. No. 4,291,886, which is a continuation of Ser. No. 813,225, Jul. 5, 1977, abandoned. This application Dec. 1, 1980, Ser. No. 211,821

Int. Cl.³ G11B *3/60, 25/04*

U.S. Cl. 369—267 **2 Claims**



1. In a record player of the type provided with a turntable having a flange for engagement with a drive belt and a pair of drive pulleys of different diameter, which are adjacent and coaxially mounted on a drive shaft, a belt shifting arrangement of shifting said belt from one pulley to the other comprising a support member, a first member pivotally mounted on said support member and movable between first and second positions, said first member having an inclined portion adapted to engage one side of said drive belt and shift belt from a first one of said pulleys to the second pulley when said first member is moved to said first position, a second member pivotally mounted on said support member and interconnected with said first member at a point between the respective pivot points of said first and second members so that said first and second members pivot in opposite directions in response to movement of said first member between said first and scond positions, said second member having an inclined portion adapted to engage said drive belt and shift said belt from said second pulley to said first pulley when said first member is moved from said first position to said second position.

4,340,959

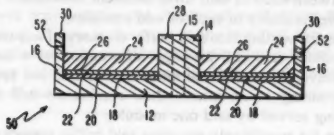
OPTICAL RECORDING MEDIUM WITH A THICK OVERCOAT

Leonard J. Levin, Levittown, Pa., assignor to RCA Corporation, New York, N.Y.

Filed Dec. 28, 1979, Ser. No. 108,030

Int. Cl.³ G11B *7/24*

U.S. Cl. 369—275 **11 Claims**



1. In an optical recording medium for use in an optical recording and readout system employing light of a certain wavelength which comprises:

a substrate having a major surface;

a light reflective layer, which reflects a substantial portion of light incident thereon at said wavelength, overlying at least a portion of said major surface;

a light absorptive layer, which absorbs light at said wavelength, overlying said light reflective layer; and

an overcoat layer, which is substantially transmissive of light at said wavelength, overlying said light absorptive layer;

the improvement which comprises a substrate having a major surface, which has a center portion and a portion extending about said substrate periphery raised a distance above said major surface;

wherein said light reflective layer and said light absorptive layer overlie at least a portion of said major surface which is not raised and said overcoat layer overlies said light absorptive layer and wherein said raised peripheral portions contain one or more openings extending radially therethrough and extending upwards a distance from a point above the surface of said light absorptive layer.

4,340,960

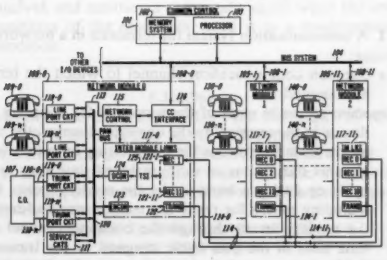
TIME DIVISION SWITCHING SYSTEM

John C. Moran, Glen Ellyn, Ill., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Jul. 25, 1980, Ser. No. 172,273

Int. Cl.³ H04Q *11/04*

U.S. Cl. 370—62 **21 Claims**



1. In a time division switching system having a plurality of call serving switching modules,

a time division bus in each of said modules,

a plurality of port circuits in each of said modules with each of said port circuits being connected to the time division bus of its module,

means for assigning each call served by any one of said modules to a unique time slot in a series of cyclically recurring time slots unique to each module,

characterized in that said system further comprises: a bus system interconnecting all of said modules for the exchange of call information between modules serving intermodule calls,

means responsive to the serving of an intermodule conference call between port circuits in at least three different ones of said modules for exchanging call data words containing call message information over said bus system between each of said three different modules,

a buffer memory in each of said modules,

means for writing into said buffer memory of any one of said modules said call message information of a data word received by a said one module over said bus system and pertaining to an intermodule conference call currently being served by said one module,

means for repetitively scanning said buffer memory in each of said modules to read out any call message information stored in said buffer memory, and

means responsive to each readout of call message information pertaining to a conference call from any one of said buffer memories for applying said readout information over the time division bus of said module containing said readout memory to the module port circuit serving the intermodule conference call to which said readout information pertains.

4,340,961

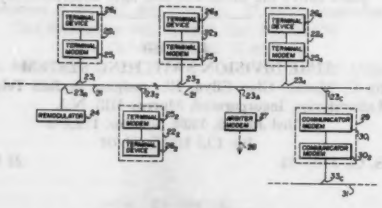
DISTRIBUTED MULTI-PORT COMMUNICATIONS SYSTEM

Antony C. Capel; George Yan, both of Deep River; George E. Gilks, Chalk River, and Rodney J. West, Pembroke, all of Canada, assignors to Atomic Energy of Canada Limited, Ottawa, Canada

Filed Mar. 6, 1980, Ser. No. 127,562

Int. Cl.³ H04J 3/16

U.S. Cl. 370—84 **6 Claims**



1. A communication system for terminals in a network comprising:

a common communication channel to which the terminals are coupled;

modem means in each of the terminals for coupling a user device in the terminal to the common channel, the modem means including means for transmitting onto the common channel during one or more assigned time slots in a poll cycle or during a burst cycle, the modem means further including means for receiving transmissions addressed to the modem means through the common channel during time slots in the poll cycle assigned to the transmitting modem means and during a burst cycle allotted to the transmitting modem means; and

arbiter means for initiating the poll cycle in each modem means and for allotting a burst cycle to a modem means upon request.

4,340,962

CIRCUIT ARRANGEMENT FOR THE SYNCHRONIZATION OF A DIGITAL SUBSCRIBER STATION BY A DIGITAL EXCHANGE IN A PCM TELECOMMUNICATION NETWORK

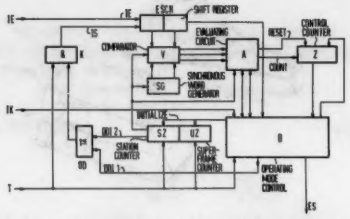
Klaus Wintzer; Josef Zemanek, and Frithjof von Sichart, all of Munich, Fed. Rep. of Germany, assignors to Siemens Aktiengesellshaft, Berlin and Munich, Fed. Rep. of Germany

Filed Jul. 7, 1980, Ser. No. 166,474

Claims priority, application Fed. Rep. of Germany, Jul. 27, 1979, 2930586

Int. Cl.³ H04J 3/06; H04L 7/10

U.S. Cl. 370—100 **4 Claims**



1. A circuit arrangement for the synchronization of a subordinate system, such as a digital subscriber station, by a superordinate system, such as a digital exchange, in a PCM telecommunication network for the transmission of digital signals in the form of message signal blocks which comprise:

(1) a prefix synchronization word having a first bit whose value remains the same and at least one subsequent bit indicative at least of the beginning of a superframe containing several receive/transmit periods within such message signal blocks, and

(2) at least one message signal word having a plurality of bits,

said circuit arrangement being disposed in said subordinate system and comprising, in combination:

(a) a shift register (ESCH) having a plurality of stages at least equal in number to the number of bits of a synchronization word and having an input connected to the first stage for receiving said message signal blocks in serial form;

(b) station counter means (SZ), connected to receive clock pulses at a first input and to receive first reset pulses at a second input, for producing a first output signal indicating the transmit and receive periods of said subordinate system;

(c) superframe counter means (UZ), connected to receive said clock pulses at a first input and to receive second reset pulses at a second input, for producing a second output signal indicating the superframe periods of said subordinate system;

(d) a synchronous word generator (SG), connected to said superframe counter means for providing a bit pattern of an expected synchronization word, said bit pattern being selected to indicate the beginning of a superframe period of said subordinate system in response to said second output signal from said superframe counter means;

(e) comparator means (V) connected to the stages of said shift register associated with the bits of said synchronization word, to said synchronous word generator and to said station counter means, for comparing the contents of said shift register stages and said synchronous word generator when said first output signal from said station counter means signals the beginning of each receive period;

(f) operating mode control means (B), connected to receive signals from said shift register representing the bits of a synchronization word and connected to receive a signal representing a criterion which identifies the first bit of the bit combinations received by said shift register as being

the start of a message signal block, for producing (1) a mode signal (ES) indicative of a synchronization phase when in one mode and a synchronous operation phase when in another mode, (2) said first reset pulse when the bit contained in the last stage of said shift register has the same binary value as the first bit of a correct synchronization word and (3) said second reset pulse when said bit combination of said synchronization word identifies a superframe;

(g) an evaluating circuit (A), connected to the output of said comparator means and to said operating mode control means for producing during said synchronization phase first result signals when said comparator means indicates a positive comparison result and second result signals when said comparator means indicates a negative comparison result, and producing during said synchronous operation phase third result signals when said comparator means indicates a negative comparison result; and

(h) a control counter (Z), connected to said evaluating circuit and to said operating mode control means, for counting forward upon receipt of said first and third result signals and resetting to zero upon receipt of said second result signals, said control counter supplying a first signal to said operating mode control means upon reaching a prescribed counter position during said synchronization phase, whereupon said operating mode control means switches to said synchronous operation phase, said control counter being set back one count during said synchronous operation phase after a given number of transmission periods if it is not already in its initial position and said control counter supplying a second signal to said operating mode control means upon reaching a prescribed counter position during said synchronous operation phase whereupon said operating mode control means switches again to said synchronization phase;

whereby the transmission and reception of information by other parts of said subordinate system is suppressed during the synchronization phase until the next synchronous phase begins.

4,340,963

METHODS AND SYSTEMS FOR THE CORRECTION OF ERRORS IN DATA TRANSMISSION

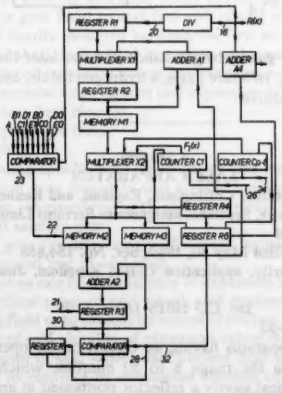
Peter J. Munday, Reading, England, assignor to Racal Research Limited, Bracknell, England

Filed Nov. 10, 1980, Ser. No. 205,437

Claims priority, application United Kingdom, Nov. 17, 1979, 7939825

Int. Cl.³ G06F *11/10*

U.S. Cl. 371—37 **7 Claims**



1. A method of correcting errors in a block of data received via a transmission link, in which the block of data is made up of a plurality of data symbols each of which can have any one of a plurality of predetermined data values, comprising the steps of: monitoring the actual level of signal representing each received data symbol whereby to produce for each symbol a first signal output representing the particular data value of that symbol and a second signal output representing the degree of probability of the symbol having that particular data value; generating, in response to the received block of data, a plurality of further, mutually different, blocks of data in each of which up to a predetermined number (the same for all the generated blocks) of the symbols differ in data value from the corresponding symbols in the received data block; and producing for each of the said further data blocks, in response to the values of the said second signal outputs respectively corresponding to the data symbols in the received block of data, a signal level representing the degree of probability that the further block of data is the same as the block of data input to the transmission link, and thereby determining which of the said further blocks of data is most likely to equal the transmitted block of data.

4,340,964

METHOD AND AN ARRANGEMENT FOR AUTOMATIC ACCESS OPTIMIZATION IN RANDOM ACCESS MEMORIES

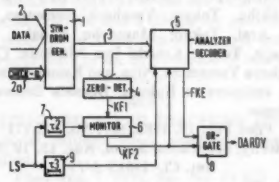
Erhard Sprick, and Rudolf Kaiserswerth, both of Munich, Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Berlin and Munich, Fed. Rep. of Germany

Filed Jun. 10, 1980, Ser. No. 158,116

Claims priority, application Fed. Rep. of Germany, Jun. 27, 1979, 2925966

Int. Cl.³ G06F *11/10*

U.S. Cl. 371—38 **10 Claims**



1. A method for automatic access optimization in reading data words from a random access memory having an error correction device comprising the steps of:

generating a syndrome having a value representing the error condition of a read data word;

monitoring the value of the syndrome during a predetermined monitoring interval;

when the syndrome value deviates from a prescribed value during the monitoring interval, repeating the monitoring interval; and emitting a data ready signal when the error condition of the read data word is at a predetermined condition.

4,340,965

METHOD OF AND APPARATUS FOR DETECTING AND CIRCUMVENTING MALFUNCTIONS IN A CURRENT-LOOP COMMUNICATIONS SYSTEM

John T. Beckman, Granville, and Paul S. Sanik, Westerville, both of Ohio, assignors to Owens-Corning Fiberglas Corporation, Toledo, Ohio

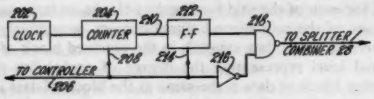
Filed Oct. 22, 1980, Ser. No. 199,176

Int. Cl.³ G06F *11/00*

U.S. Cl. 371—62 **10 Claims**

1. In a communication system having a communication line with a plurality of ports to which electronic means are attached for transmitting and receiving sets of signals, said sets of signals comprising combinations of a first signal having a first

magnitude and a second signal having a second magnitude, said second magnitude being different than said first magnitude, and said sets of signals being of a predetermined total number of said first and second signals and always starting with a second signal and ending with a first signal, each of said plurality of electronic means being adapted to provide a first signal when it is not transmitting a set of signals, a method of detecting a malfunction in a first electronic means associated with a first port of said plurality of ports and preventing said first electronic means from interfering with the operation of the



remainder of the system when such malfunction occurs, said method comprising the steps of: starting the timing of a predetermined period of time when said first electronic means transmits a second signal after a first signal; resetting the time period when said first electronic means transmits a first signal; inhibiting the transmission of signals transmitted by said first electronic means to said communication line if said predetermined period of time has elapsed; and providing a first signal to said communication line if said predetermined period of time has elapsed.

4,340,966

SEMICONDUCTOR LASER WITH BUFFER LAYER

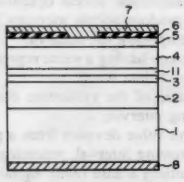
Shigeyuki Akiba, Tokyo; Yasuharu Suematsu, Kawasaki; Shigehisa Arai, Tokyo; Masanobu Kodaira, Yokohama; Yoshio Itaya, Tokyo; Kenichi Iga, Machida; Chuichi Ota, Fuchu; Takaya Yamamoto, Niza, and Kazuo Sakai, Tokyo, all of Japan, assignors to Kokusai Denshin Denwa Kabushiki Kaisha, Japan

Filed Feb. 19, 1980, Ser. No. 122,171

Claims priority, application Japan, Aug. 15, 1979, 54-103125

Int. Cl.³ H01S *3/19*

U.S. Cl. 372—45 **2 Claims**



1. In a semiconductor laser formed on an InP substrate having a hetero structure comprising a plurality of $In_{1-x}Ga_xAs_yP_{1-y}$ ($0.42y \leqq x \leqq 0.5y$, $0 \leqq y \leqq 1$) layers which are lattice-matched with InP, said semiconductor laser having carrier injecting electrodes and resonant cavity means formed by a light emitting layer included in said plurality of $In_{1-x}Ga_xAs_yP_{1-y}$ layers, the improvement comprising said layers comprising the light emitting layer having a forbidden band width larger than 0.6 eV but smaller than 0.9 eV at room temperature and sandwiched between two InP layers on the InP substrate, and said layers including a buffer layer having a forbidden band width larger than the forbidden band width of the light emitting layer but smaller than the forbidden band width of InP and disposed between the light emitting layer and the InP layer grown thereon.

4,340,967

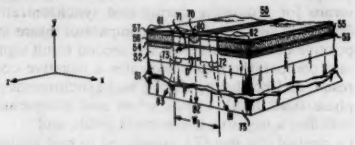
SEMICONDUCTOR LASERS WITH STABLE HIGHER-ORDER MODES PARALLEL TO THE JUNCTION PLANE

Richard W. Dixon, Bernardsville, and Bertram Schwartz, Westfield, both of N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Jun. 2, 1980, Ser. No. 155,560

Int. Cl.³ H01S *3/19*

U.S. Cl. 372—46 **11 Claims**



1. In a semiconductor junction laser, a semiconductor body comprising:

at least two contiguous layers forming a planar p-n junction;

means forming a current flow path overlapping at least a portion of said p-n junction;

an active region within said current flow path for generating stimulated radiation when said p-n junction is forward biased; and

an elongated lossy region located in said current flow path and positioned for causing said laser to operate in a particular higher order transverse mode in a direction parallel to said p-n junction.

4,340,968

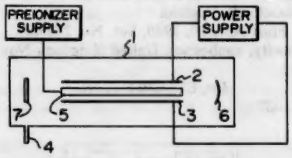
RARE-GAS HYDROGEN-HALIDE EXCIMER LASER WITH HYDROGEN ADDITIVE

Clive Willis, Ottawa, and Terrence J. McKee, Nepean, both of Canada, assignors to Canadian Patents & Dev. Ltd., Ottawa, Canada

Filed Jun. 9, 1980, Ser. No. 157,942

Int. Cl.³ H01S *3/22*

U.S. Cl. 372—60 **20 Claims**



1. In a rare-gas hydrogen-halide excimer laser the gas mixture including: two rare gases, a hydrogen halide, and a hydrogen donor additive.

4,340,969

LASER APPARATUS

David C. Hamilton, Cottingham, England, and Kenneth S. Lipton, Edinburgh, Scotland, assignors to Ferranti Limited, Cheadle, England

Filed May 30, 1980, Ser. No. 154,858

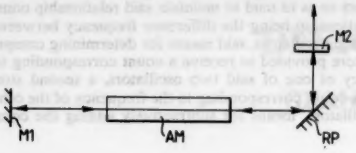
Claims priority, application United Kingdom, Jun. 2, 1979, 7919306

Int. Cl.³ H01S *3/081, 3/08*

U.S. Cl. 372—93 **7 Claims**

1. Laser apparatus having an optical cavity operable at a wavelength in the range 8 to 50 microns, which includes within its optical cavity a reflector positioned at an insertion angle in the range 20° to 70° and comprising a substrate carrying a metallic reflecting coating over which is formed a layer

of dielectric material of a composition and thickness such that at the wavelength of operation the differential absorption



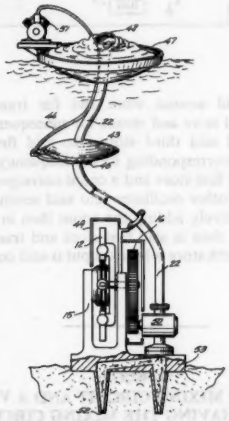
between radiation polarised in two perpendicular planes prevents laser operation in one of the two planes.

4,340,970

POWER WHEEL

Friedrich Weinert, 219-19 131st Ave., Jamaica, N.Y. 11413

Filed Jun. 4, 1980, Ser. No. 156,419
Int. Cl.³ G21C *00/00*
U.S. Cl. 376—208 **4 Claims**



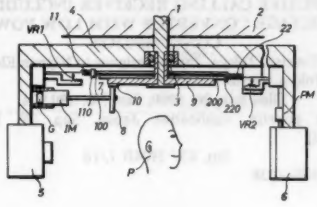
1. A nuclear power wheel comprising
a stationary side gear having a central substantially horizontal axis and mounted on a frame means,
a shaft having first and second ends, said shaft being mounted on said axis,
means for rotating said shaft solely in one direction,
a satellite gear fixed to said first end of said shaft,
a wheel fixedly mounted between the first and second ends of said shaft, said wheel having an outer perimeter,
a plurality of expansion valves mounted on said outer perimeter on radial axes, each of said expansion valves including
a nuclear heat element,
an expandable fluid,
a pushrod,
a rotating spindle bushing joined to said pushrod,
a pinion gear joined to said spindle bushing, said pinion gear intermeshing with said stationary side gear and said satellite gear,
a drive gear for delivering useful work output mounted on the second end of said shaft,
wherein when one of said plurality of expansion valves is at the lowest vertical point of said wheel, said nuclear heat element causes the fluid to to expand by means of nuclear reactions, and when one of said plurality of expansion valves is at the highest vertical point of said wheel, said nuclear heat element causes said fluid to contract by substantial absence of nuclear reactions; thereby effecting reciprocatory motion of the pushrods which in turn effect rotary motion of said pinion gear, said satellite gear and said drive gear.

4,340,971

DENTAL RADIOGRAPHIC APPARATUS FOR PHOTOGRAPHING ENTIRE JAWS

Shuhei Furuichi, Shiga, Japan, and Masakazu Suzuki, Naka, both of Japan, assignors to Kabushiki Kaisha Morita Seisakusho, Kyoto, Japan

Filed Sep. 19, 1980, Ser. No. 188,884
Claims priority, application Japan, Sep. 20, 1979, 54-121524
Int. Cl.³ G03B *41/16*
U.S. Cl. 378—40 **7 Claims**



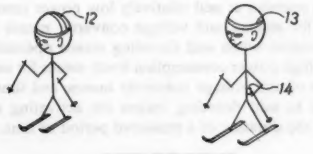
1. A dental radiographic apparatus for photographing the entire jaws including a horizontal rotary arm and a drive motor for rotating said horizontal rotary arm, said arm having an X-ray generator disposed at one end thereof and having an X-ray film cassette holder disposed at the other end thereof in an opposed relation with each other and a motor for feeding X-ray film in said X-ray film cassette holder, said apparatus being characterized in that said apparatus comprises at least one circuit for detecting as an electrical signal the rotation position of said horizontal rotary arm, a circuit for controlling the speed of said drive motor, said circuit controlling the speed of the drive motor in response to the electrical signal detected by said detecting circuit, and a circuit for automatically controlling the speed of an X-ray film feed motor synchronously with or independently of the drive motor of said rotary arm.

4,340,972

TRANSMITTER/RECEIVER TEACHING APPARATUS

Kenneth D. Heist, Billings, Mont., assignor to Sporteach, Inc., Helena, Mont.

Filed Aug. 7, 1979, Ser. No. 64,572
Int. Cl.³ H04B *1/034*
U.S. Cl. 455—39 **7 Claims**



1. Teaching apparatus including a transmitter unit, a receiver unit and a prompter unit, each of said units being disposed in a separate self-contained unit, said transmitter unit being adapted to be worn on a head of a first individual and including a first peripheral band portion and a top connecting portion extending in an arcuate path between opposing sides of said first peripheral band, a microphone disposed on the under side of said connecting portion intermediate the ends thereof for contact with the head, an antenna associated with said first peripheral band portion, first citizen's band transmitter means located on said connecting portion, first power supply means connected to said first transmitter means, voice activatible actuating means connected to said first transmitter means; said receiver unit being adapted to be worn on a head of a second individual and including a second peripheral band portion, transducer means disposed on the inside of said second periph-

eral band portion, citizen's band receiver means connected to said transducer means, second power supply means connected to said receiver means, said prompter unit being adapted to be worn by said second individual including second citizen's band transmitter means, message producing means connected to said second transmitter means, third power supply means connected to said second transmitter means and an antenna connected to said second transmitter means.

4,340,973

SELECTIVE CALLING RECEIVER INCLUDING A VOLTAGE CONVERTER WITH LOW POWER CONSUMPTION

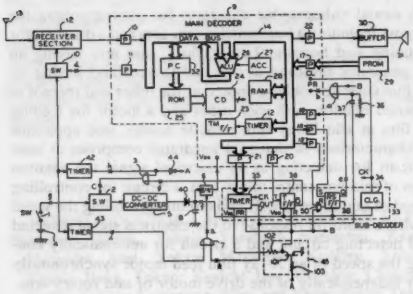
Shinjiro Umetsu, Tokyo, Japan, assignor to Nippon Electric Co., Ltd., Tokyo, Japan

Filed Sep. 26, 1980, Ser. No. 190,924

Claims priority, application Japan, Sep. 29, 1979, 54-134803[U]

Int. Cl.³ H04B *1/16*

U.S. Cl. 455—228 **5 Claims**



5. A receiver comprising decoding means selectively operating at either a relatively low power consumption level or at a relatively high power consumption level; power source means; voltage converter means for converting the output of said power source means to supply power to said decoding means; first means for disabling said voltage converter means in response to a signal from said decoding means when said decoding means operates at said relatively low power consumption level and for making said voltage converter means intermittently operative when said decoding means operates at said relatively high power consumption level; means for smoothing the output of said voltage converter means; and timer means responsive to said decoding means for activating said first means for the duration of a measured period of time.

4,340,974

LOCAL OSCILLATOR FREQUENCY DRIFT COMPENSATION CIRCUIT

Billy O. Cooke, Selly Oak, and Philip N. Nield, Wythall, both of England, assignors to Eddystone Radio Limited, Chelmsford, England

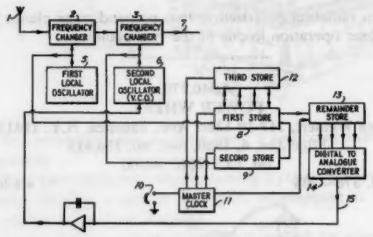
Continuation of Ser. No. 102,759, Dec. 12, 1979, abandoned, which is a continuation-in-part of Ser. No. 1,608, Jan. 8, 1979, abandoned, which is a continuation of Ser. No. 798,875, May 20, 1977, abandoned. This application Feb. 23, 1981, Ser. No. 236,984

Claims priority, application United Kingdom, May 22, 1976, 21292/76

Int. Cl.³ H04B *1/26*

U.S. Cl. 455—258 **1 Claim**

1. In a superheterodyne receiver having a plurality of local oscillators each associated with a frequency changer, the improvement which comprises means for determining a relationship between two of said oscillators to provide a control signal and means for utilising said control signal to control one of said oscillators so as to tend to maintain said relationship constant, said relationship being the difference frequency between said two of said oscillators, said means for determining comprising a first store provided to receive a count corresponding to the frequency of one of said two oscillators, a second store to receive a count corresponding to the frequency of the other of two oscillators, means for subtractively adding the count of



said first and said second store and for transferring the resultant to a third store and means for subsequently transferring the count of said third store into said first store, for applying a count corresponding to the frequency of said one oscillator into said first store and a count corresponding to the frequency of said other oscillator into said second store, and means for subtractively adding the count then in said second store to the count then in said first store and transferring the remainder to a fourth store whose output is said control signal.

4,340,975

MICROWAVE MIXING CIRCUIT AND A VHF-UHF TUNER HAVING THE MIXING CIRCUIT

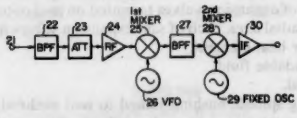
Hiroshi Onishi, Kawasaki, and Sadahiko Yamashita, Sagamihara, both of Japan, assignors to Matsushita Electric Industrial Company Limited, Osaka, Japan

Filed Oct. 8, 1980, Ser. No. 195,314

Claims priority, application Japan, Oct. 9, 1979, 54–130573; Apr. 14, 1980, 55–49377

Int. Cl.³ H03D *7/02, 7/14;* H04B *1/26;* H04N *5/44*

U.S. Cl. 455—315 **29 Claims**



1. A VHF-UHF all-band tuner of the double superheterodyne type including a first mixing circuit for converting an incoming signal frequency into a first intermediate frequency by mixing said incoming signal with a first local oscillator signal whose frequency is variable, a filter circuit for selectively receiving said first intermediate frequency signal, and a second mixing circuit responsive to the output signal of said filter circuit and to a second local oscillator signal whose frequency is fixed, for converting said first intermediate frequency into a second intermediate frequency; characterized in that said first local oscillator frequency is higher than said first intermediate frequency, and in that said first intermediate frequency lies in a band of 2520 to 2700 MHz.

DESIGN PATENTS

GRANTED JUL. 20, 1982

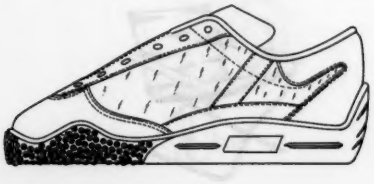
ERRATA

For CLASS	See PATENT NO.
D02–019	265,487

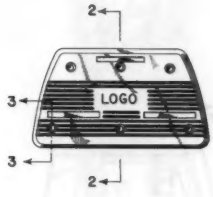
265,435
SHOE
Christian Vermonet, Cholet, France, assignor to Societe Technisynthese (S.A.R.L.), Saint Pierre Montlimart, France
Filed May 6, 1980, Ser. No. 147,323
Term of patent 3½ years
Int. Cl. D2—*04*
U.S. Cl. D2—309

265,436
SHOE
Christian Vermonet, Cholet, France, assignor to Societe Technisynthese (S.A.R.L.), Saint Pierre Montlimart, France
Filed May 6, 1980, Ser. No. 147,327
Term of patent 3½ years
Int. Cl. D2—*04*
U.S. Cl. D2—309

265,437
SHOE
Christian Vermonet, Cholet, France, assignor to Societe Technisynthese (S.A.R.L.), Saint Pierre Montlimart, France
Filed May 6, 1980, Ser. No. 147,328
Term of patent 3½ years
Int. Cl. D2—*04*
U.S. Cl. D2—309



265,438
RUNNER'S SHOE PLATE
Myron Jaffe, 2800 Tennyson Rd., Cleveland, Ohio 44104
Filed Nov. 16, 1979, Ser. No. 94,926
Term of patent 7 years
Int. Cl. D2—*04*
U.S. Cl. D2—317

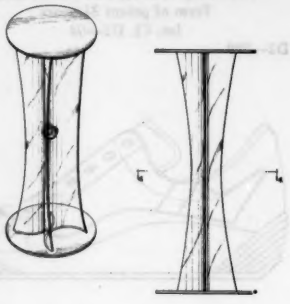


265,439
LUGGAGE
Ted Stark, Montclair, N.J., assignor to M & M Luggage Co., Inc., Jersey City, N.J.
Filed Oct. 17, 1980, Ser. No. 197,778
Term of patent 14 years
Int. Cl. D3—*01*
U.S. Cl. D3—71

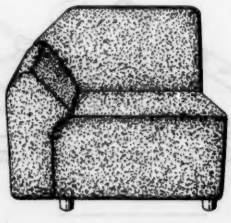
265,440
CHAIR
Henry Orenstein, 136 Lakeside Ave., Verona, N.J. 07044
Filed Oct. 12, 1979, Ser. No. 84,111
Term of patent 14 years
Int. Cl. D6—*01*
U.S. Cl. D6—12

265,441
PEDICURE TABLE
J. Nissim Menashe, Santa Ana Heights, Calif., assignor to American International Industries, Inc., North Hollywood, Calif.
Filed May 27, 1980, Ser. No. 153,200
Term of patent 14 years
Int. Cl. D6—*05*
U.S. Cl. D6—17

265,442
ARTICLE DISPLAY STAND
Robert D. Grossman, 22 Rivo Alto Dr., Miami Beach, Fla. 33139
Filed Jun. 2, 1980, Ser. No. 155,372
Term of patent 14 years
Int. Cl. D06—*06*
U.S. Cl. D6—27



265,443
SEAT
Roger L. Webb, London, England, assignor to Antocks Lairn Limited, London, England
Filed Mar. 12, 1980, Ser. No. 129,758
Claims priority, application United Kingdom, Sep. 14, 1979, 991576
Term of patent 14 years
Int. Cl. D6—*01*
U.S. Cl. D6—67

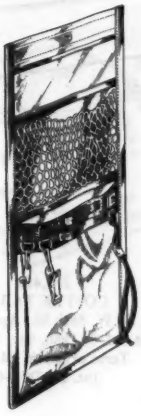


265,444
CHAIR
Takeshi Nii, 1-13, Nishisenbacho, Tokushima 770, Japan
Filed Jun. 10, 1980, Ser. No. 158,234
Claims priority, application Japan, Dec. 22, 1979, 54-54554
Term of patent 3½ years
Int. Cl. D6—*01*
U.S. Cl. D6—68

265,445
COMBINED TOWEL RACK AND SHELF
James E. Duggan, 1991 Dellwood Dr., Atlanta, Ga. 30309
Filed Feb. 28, 1980, Ser. No. 125,560
Term of patent 14 years
Int. Cl. D23—*02*; D6—*04*
U.S. Cl. D6—91

265,446
COATHOOK
Pasquale Valli, Renate, Italy, assignor to Valli & Colombo S.p.A., Italy
Filed Apr. 7, 1980, Ser. No. 138,212
Claims priority, application Italy, Oct. 5, 1979, 22772/79[U]
Term of patent 14 years
Int. Cl. D6—*06*; D8—*08*
U.S. Cl. D6—122

265,447
STORAGE UNIT FOR LOCKER OR THE LIKE
Warren D. Harris, Carmichael, Calif., assignor to Jedseth Products, Carmichael, Calif.
Filed Feb. 8, 1980, Ser. No. 119,693
Term of patent 14 years
Int. Cl. D6—*04*
U.S. Cl. D6—131

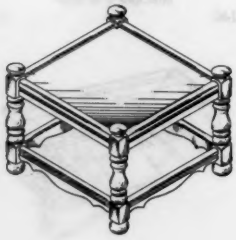


265,448
DISPLAY HOLDER FOR CARDS AND THE LIKE
Richard M. Liptak, Parma Heights, Ohio, assignor to Integral Design, Inc., Cleveland, Ohio
Filed Apr. 7, 1980, Ser. No. 137,768
Term of patent 14 years
Int. Cl. D20—*02*
U.S. Cl. D6—140

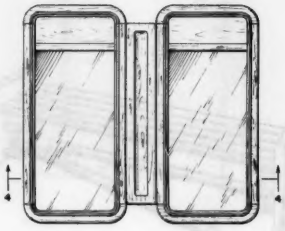
265,449
DESK
Carlos L. Lopez-Benitez, Jamestown, N.C., assignor to Monarch Furniture Corp., High Point, N.C.
Filed Jun. 2, 1980, Ser. No. 155,855
Term of patent 14 years
Int. Cl. D06—*04*
U.S. Cl. D6—161

265,450
COFFEE TABLE
Denise Berryman, 58 W. 58th St., Apt. 20B, New York
Filed Jul. 7, 1980, Ser. No. 166,620
Term of patent 14 years
Int. Cl. D6—*03*
U.S. Cl. D6—175

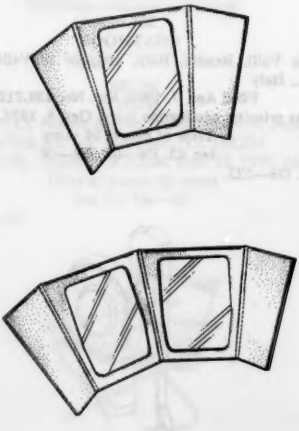
265,451
TABLE
Daniel D. Wistehuff, Hickory, N.C., assignor to Pinnacle Furniture Company, Inc., Claremont, N.C.
Filed Apr. 18, 1980, Ser. No. 141,592
Term of patent 14 years
Int. Cl. D6—*03*
U.S. Cl. D6—177



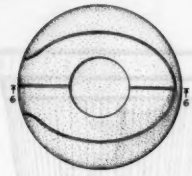
265,452
MIRROR FRAME
Huey T. Keller, High Point, N.C., assignor to The Vaughan Furniture Company, Galax, Va.
Filed Feb. 21, 1980, Ser. No. 123,291
Term of patent 14 years
Int. Cl. D6—*07*
U.S. Cl. D6—234



265,453
PICTURE DISPLAY FRAME
Donald B. Smith, R.R. No. 1, Mount Brydges, Ontario, Canada (N0L 1W0)
Division of Ser. No. 44,844, Jun. 4, 1979, Pat. No. No. Des. 261,585.
This application May 28, 1981, Ser. No. 267,999
Term of patent 14 years
Int. Cl. D6—*07*
U.S. Cl. D6—235



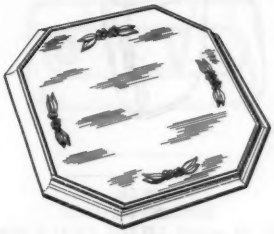
265,454
SIMULATIVE PHOTO FRAME
Nick P. Martin, 438 Cresent, Santa Maria, Calif. 93454
Filed Feb. 4, 1980, Ser. No. 118,564
Term of patent 14 years
Int. Cl. D6—*07*
U.S. Cl. D6—245



265,455
SUPPORT FOR PICTURE OR THE LIKE
Robert S. Wallace, Los Angeles, Calif., assignor to Dan F. Wallace, Karlua-Kona, Hi.
Filed Feb. 19, 1980, Ser. No. 122,462
Term of patent 14 years
Int. Cl. D6—*07*
U.S. Cl. D6—246

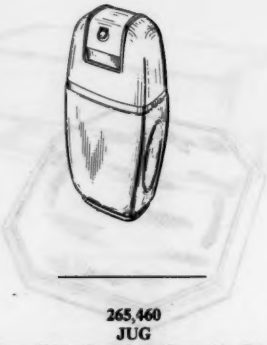
265,456
HOUSING FOR CUTTING IMPLEMENT
Donald L. Winslow, 704 Calle Casita, San Clemente, Calif. 92672, and Robert A. Clanton, 27041 Calle Juanita, Capistrano Beach, Calif. 92624
Filed May 5, 1980, Ser. No. 146,709
Term of patent 14 years
Int. Cl. D8—*05*
U.S. Cl. D8—99

265,457
WALL PLATE
Reg Littlefield, Mississauga, Canada, assignor to Aqualine Products Limited, Mississauga, Canada
Filed Aug. 3, 1981, Ser. No. 289,242
Term of patent 14 years
Int. Cl. D8—*09*
U.S. Cl. D8—351

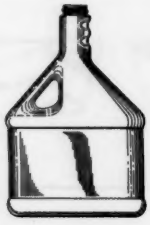


265,458
MOUNTING BRACKET
Harry Thomasson, Paarp, Sweden, assignor to Osmos Plast AB, Helsingborg, Sweden
Filed Jan. 25, 1980, Ser. No. 115,169
Claims priority, application Sweden, Oct. 24, 1979, 79-2358
Term of patent 14 years
Int. Cl. D8—*08*; D23—*02*
U.S. Cl. D8—373

265,459
DISPENSING CONTAINER
Bernard T. Picot, Paris, France, assignor to Parfums Christian Dior S.A., Paris, France
Filed Jan. 28, 1980, Ser. No. 117,529
Claims priority, application France, Jul. 27, 1979, 79 42672
Term of patent 14 years
Int. Cl. D9—*01*
U.S. Cl. D9—300



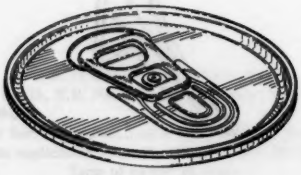
265,460
JUG
James L. Wilson, White Bear Lake Township, Ramsey County, Minn., assignor to Economics Laboratory, Inc., St. Paul, Minn.
Filed Feb. 25, 1980, Ser. No. 124,579
Term of patent 14 years
Int. Cl. D9—*01*
U.S. Cl. D9—378



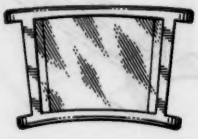
265,461
DART CONTAINER
Earl M. Valley, 909 S. Main St., Englewood, Ohio 45322
Filed Jul. 2, 1980, Ser. No. 165,404
Term of patent 14 years
Int. Cl. D9—*03*
U.S. Cl. D9—425

265,462
PACKAGING CUP
Algis S. Andrulionis, and Dereck V. Mancini, both of Etobicoke, Canada, assignors to Consumers Glass Company Limited, Etobicoke, Canada
Filed Jun. 1, 1979, Ser. No. 44,708
Claims priority, application Canada, Jan. 4, 1979, 04-01-79-2
Term of patent 14 years
Int. Cl. D9—*03*
U.S. Cl. D9—429

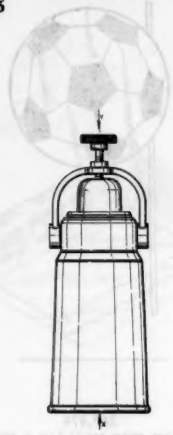
265,463
END CLOSURE FOR A CONTAINER
Gary K. Hasegawa, Chicago, Ill., assignor to The Continental Group, Inc., Stamford, Conn.
Filed Oct. 29, 1979, Ser. No. 88,982
Term of patent 14 years
Int. Cl. D09—*07*
U.S. Cl. D9—438



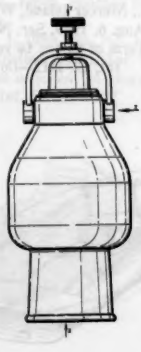
265,464
WATCH CASE
Rene Bannwart, La Chaux-de-Fonds, Switzerland, assignor to Corum, Ries, Bannwart & Co., Switzerland
Filed Jun. 11, 1980, Ser. No. 158,408
Claims priority, application Switzerland, Dec. 11, 1979, 69685/79
Term of patent 14 years
Int. Cl. D10—*02*
U.S. Cl. D10—38



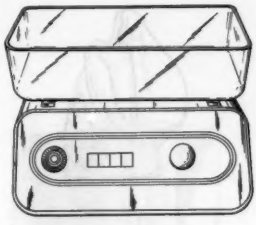
265,465
MOISTURE TESTER
John G. Baldwin, Readley, England, assignor to Thomas Ashworth & Co. Limited, Burnley, England
Filed Jul. 18, 1980, Ser. No. 170,235
Claims priority, application United Kingdom, Jan. 24, 1980, 80/993 283
Term of patent 14 years
Int. Cl. D10—*04*
U.S. Cl. D10—56



265,466
MOISTURE TESTER
John G. Baldwin, Readley, England, assignor to Thomas Ashworth & Co. Limited, Burnley, England
Filed Jul. 18, 1980, Ser. No. 170,237
Claims priority, application United Kingdom, Jan. 24, 1980, 80/993 284
Term of patent 14 years
Int. Cl. D10—*04*
U.S. Cl. D10—56



265,467
SCALE
Robert Perrier, Paris, France, assignor to Testut-Aequitas, Paris, France
Filed Jul. 11, 1980, Ser. No. 168,174
Claims priority, application France, Feb. 21, 1980, 80 0462
Term of patent 14 years
Int. Cl. D10—*04*
U.S. Cl. D10—91

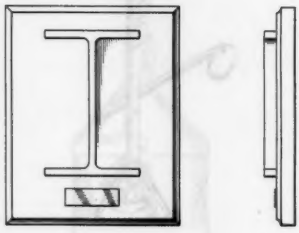


265,468
HIGHWAY SIGNAL
William Yeager, R.D. #1, Box 212, Easton, Pa. 18042
Filed Jul. 14, 1980, Ser. No. 168,101
Term of patent 14 years
Int. Cl. D10—*06*
U.S. Cl. D10—115

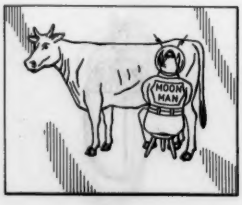
265,469
COFFEE BEAN PENDANT
Lois E. Hegnes; Candace S. Hegnes, both of 2606 Tulalip Hwy., and Herbert S. Hegnes, 2606½ Tulalip Hwy., all of Marysville, Wash. 98270
Filed Jan. 14, 1980, Ser. No. 112,101
Term of patent 14 years
Int. Cl. D11—*01*
U.S. Cl. D11—75

265,470
NOVELTY STATUETTE OR THE LIKE
Audrey L. Fritzke, #1210 "P", 201 Ocean Ave., Santa Monica, Calif. 90402
Filed Jul. 21, 1980, Ser. No. 170,616
Term of patent 14 years
Int. Cl. D11—*02*
U.S. Cl. D11—131

265,471
TROPHY PLAQUE
John B. Lanahan, Holmen, Wis., assignor to J. B. Originals, Inc., Holmen, Wis.
Filed Jun. 9, 1980, Ser. No. 157,543
Term of patent 14 years
Int. Cl. D11—*02*
U.S. Cl. D11—133

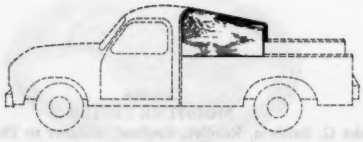


265,472
PLAQUE
Brice B. Archer, 2118 N. 2000 West, Clinton, Utah 84015
Filed Dec. 26, 1979, Ser. No. 106,513
Term of patent 14 years
Int. Cl. D11—*02*
U.S. Cl. D11—135

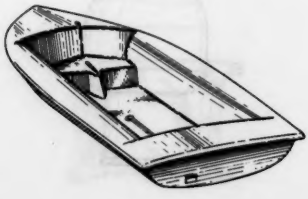


265,473
PENNANT
Larry B. Ornatek, 100-14th St., North Chicago, Ill. 60064
Filed Mar. 13, 1980, Ser. No. 116,266
Term of patent 3½ years
Int. Cl. D11—*05*
U.S. Cl. D11—166

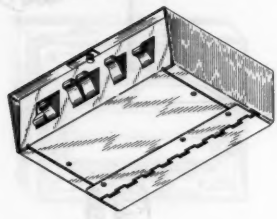
265,474
ENCLOSURE FOR THE BED OF A PICK-UP TRUCK
Rictor J. Downs, Box 951, Preeceville, Saskatchewan, Canada
Filed Apr. 28, 1980, Ser. No. 144,222
Term of patent 14 years
Int. Cl. D12—*16*
U.S. Cl. D12—156



265,475
SAILBOAT
Timothy W. Pape, Mercer Island, Wash., assignor to Alpha Racing Boats, Inc., Mercer Island, Wash.
Filed Aug. 6, 1979, Ser. No. 64,189
Term of patent 14 years
Int. Cl. D12—*06*
U.S. Cl. D12—303

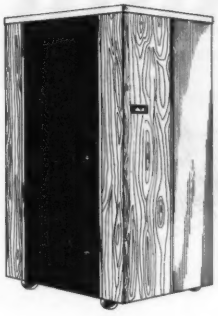


265,476
RACING CAR CONTROL PANEL
John M. Zizza, 16 Lawson Ave., Revere, Mass. 02151
Filed May 9, 1980, Ser. No. 148,559
Term of patent 14 years
Int. Cl. D13—*03*
U.S. Cl. D13—12

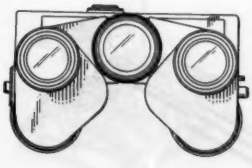


265,477
LOUDSPEAKER
Takekazu Iijima, Tokyo, Japan, assignor to Pioneer Kabushiki Kaisha, Tokyo, Japan
Filed Jul. 1, 1980, Ser. No. 165,193
Claims priority, application Japan, Apr. 9, 1980, 55-13899
Term of patent 14 years
Int. Cl. D14—*01*
U.S. Cl. D14—34

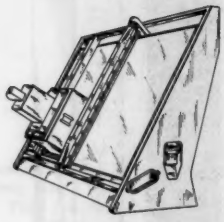
265,478
PORTABLE TELEPHONE EQUIPMENT CABINET CHASSIS
Gary G. Seaman, and Donald W. Seibold, both of Broomfield, Colo., assignors to Western Electric Company, Incorporated, New York, N.Y.
Filed Oct. 31, 1979, Ser. No. 89,787
Term of patent 14 years
Int. Cl. D14—*03*
U.S. Cl. D14—52



265,479
COMBINED BINOCULAR AND DETACHABLE CAMERA
Shogo Yamazaki, Tokyo, Japan, assignor to Ajia Amerikan Boueki Kabushiki Kaisha, Tokyo, Japan
Filed May 23, 1979, Ser. No. 41,951
Term of patent 14 years
Int. Cl. D16—*01*
U.S. Cl. D16—6

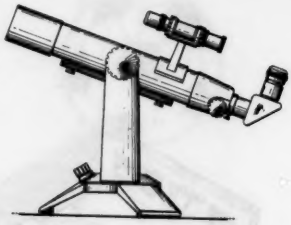


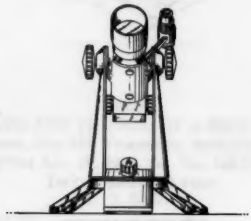
265,480
PHOTOPROCESSOR
John P. Skrypek, Mahwah, and Robert Williams, Randolph, both of N.J., assignors to Sun Chemical Corporation, New York, N.Y.
Filed Sep. 25, 1979, Ser. No. 78,881
Term of patent 14 years
Int. Cl. D16—*03*
U.S. Cl. D16—27



265,481
TRIPOD HEAD
Osamu Iwasaki, Tokorozawa, Japan, assignor to Slik Tripod Co., Ltd., Saitama, Japan
Filed Jul. 18, 1980, Ser. No. 170,128
Claims priority, application Japan, May 22, 1980, 55-19865
Term of patent 7 years
Int. Cl. D16—*05*
U.S. Cl. D16—46

265,482
TELESCOPE
Peter W. Bressler, Philadelphia, Pa., assignor to Edmund Scientific Company, Barrington, N.J.
Filed Apr. 7, 1980, Ser. No. 137,762
Term of patent 14 years
Int. Cl. D16—*06*
U.S. Cl. D16—132



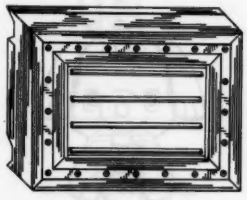


265,483
ELECTRONIC ORGAN
Reinhard Franz, Halsenbach, Fed. Rep. of Germany, assignor to WERSI Electronic GmbH & Co., Halsenback, Fed. Rep. of Germany
Continuation-in-part of Ser. No. 122,068, Feb. 15, 1980, abandoned, which is a continuation of Ser. No. 786,558, Apr. 14, 1977, abandoned. This application Sep. 24, 1980, Ser. No. 190,400
Claims priority, application Fed. Rep. of Germany, Oct. 15, 1976, 466
Term of patent 14 years
Int. Cl. D14—*01*
U.S. Cl. D17—6

265,484
ILLUMINATED SIGN WITH CHANNELS FOR MOVEABLE CHARACTER PLATES

Ralph Kutschmende, 395 Manhattan Ave., Brooklyn, N.Y. 11211

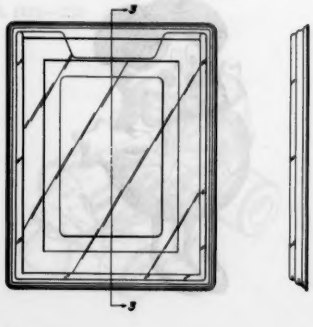
Filed Nov. 28, 1979, Ser. No. 98,303
Term of patent 14 years
Int. Cl. D20—*03*
U.S. Cl. D20—10



265,485
DISPLAY SIGN HOLDER

Richard M. Liptak, Parma Heights, Ohio, assignor to Integral Design, Inc., Cleveland, Ohio

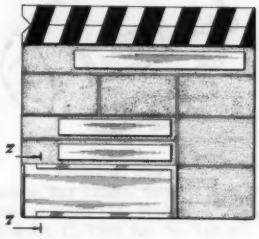
Filed Apr. 7, 1980, Ser. No. 137,587
Term of patent 14 years
Int. Cl. D20—*03*; D6—*07*
U.S. Cl. D20—10



265,486
CLAPPER SLATE

Neil C. Lundell, 1314 Preston Way, Venice, Calif. 90291, and Gilbert S. Prowler, 10110 Woodman Ave., Mission Hills, Calif. 91345

Filed Jun. 23, 1980, Ser. No. 161,763
Term of patent 14 years
Int. Cl. D20—*03*
U.S. Cl. D20—10



265,487
BALL TRANSFERRING GAME BOARD

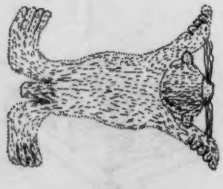
Masaharu Ohki, 13-17-208, Ichikawa Minami 3-chome, Ichikawa-shi, Chiba-ken, Japan

Filed Jun. 3, 1980, Ser. No. 156,170
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D21—19

265,488
TOY BLIMP
Mel Appel, Nine Nottingham Rd., Livingston, N.J. 07039, and George Kress, Scotch Plains, N.J., assignors to Mel Appel, Livingston, N.J.
Filed Feb. 17, 1981, Ser. No. 235,430
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D21—87

265,489
TOY GLIDER
Richard M. Karn, 17 Kenneth Ave., Sandringham, Auckland, and Peter F. Haythornthwaite, 34 Quebec Rd., Milford, Auckland, both of New Zealand
Filed Oct. 3, 1980, Ser. No. 193,582
Term of patent 14 years
Int. Cl. D21—*81*
U.S. Cl. D21—88

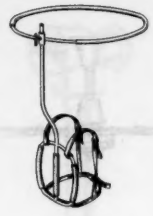
265,490
TOY SEAL
Patricia I. Holstine, 16 N. Main, Conrad, Mont. 59425
Filed Dec. 28, 1979, Ser. No. 107,996
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D21—157



265,491
TOY ANIMAL
Shinroku Nakao, Yokohama; Yoshiyasu Ishii, and Susumu Matsumoto, both of Tokyo, all of Japan, assignors to Combi Co., Ltd., Tokyo, Japan
Filed Jun. 9, 1980, Ser. No. 157,730
Claims priority, application Japan, Dec. 12, 1979, 54-51894
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D21—161

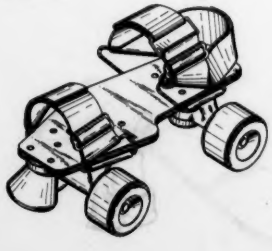
265,492
DOLL
Sandra L. Johanson, 1682 Tiffany Pl., Santa Ana, Calif. 92705
Filed Sep. 2, 1980, Ser. No. 183,148
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D21—173

265,493
BODY-MOUNTED BASKETBALL BALL SHOOTING AID
Gerry Kringlie, Box 777, Valley City, N. Dak. 58072
Filed May 5, 1980, Ser. No. 147,344
Term of patent 14 years
Int. Cl. D21—*02*
U.S. Cl. D21—201



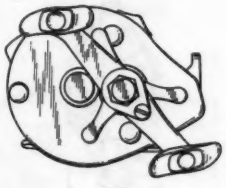
265,494
GOLF CLUB HEAD
Masashi Kobayashi, Japan, assignor to Maruman Golf Kabushiki Kaisha, Tokyo, Japan
Filed Jul. 1, 1980, Ser. No. 165,190
Term of patent 14 years
Int. Cl. D21—*02*
U.S. Cl. D21—220

265,495
ROLLER SKATE
David A. Dominy, Cardiff, and Lawrence M. Balma, Leucadia, both of Calif., assignors to Tracker Designs, Ltd., Carlsbad, Calif.
Filed Jun. 13, 1980, Ser. No. 159,299
Term of patent 14 years
Int. Cl. D21—*02*
U.S. Cl. D21—226

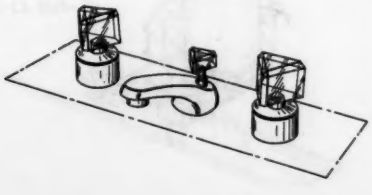


265,496
FISHING ROD HANDLE
Robert L. McMickle, Spirit Lake, Iowa, assignor to Berkley and Company, Inc., Spirit Lake, Iowa
Filed Jun. 30, 1980, Ser. No. 164,899
Term of patent 14 years
Int. Cl. D22—*05*
U.S. Cl. D22—23

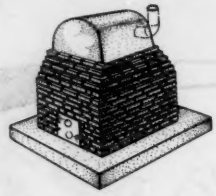
265,497
FISHING REEL
Masakazu Sakamoto, and Takeshi Shohoji, both of Fukuyama, Japan, assignors to Ryobi Ltd., Hiroshima, Japan
Filed Jul. 17, 1980, Ser. No. 169,557
Claims priority, application Japan, Jan. 28, 1980, 55-2539
Term of patent 14 years
Int. Cl. D22—*05*
U.S. Cl. D22—25



265,498
COMBINED SPOUT AND WATER CONTROL HANDLES
Stanley M. Paul, Rye, N.Y., assignor to American Standard Inc., New York, N.Y.
Filed Oct. 20, 1980, Ser. No. 198,388
Term of patent 14 years
Int. Cl. D23—*01*
U.S. Cl. D23—25

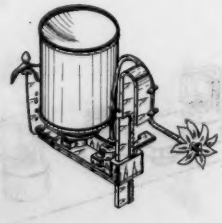


265,499
FIREPLACE
Gunther M. Bartsch, P.O. Box 1935, Zephyr Cove, Nev. 89448
Filed Jun. 30, 1980, Ser. No. 164,246
Term of patent 14 years
Int. Cl. D23—*03*
U.S. Cl. D23—94

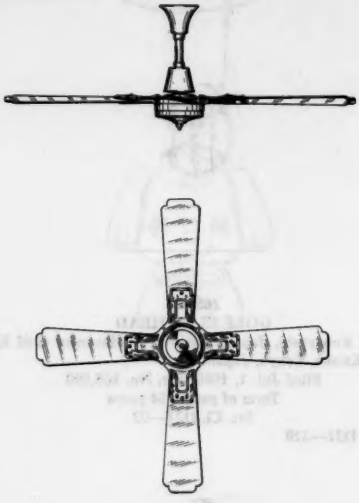


265,500
FIREPLACE UNIT
William T. Smith, 5500 Morro Way #88, La Mesa, Calif. 92041
Filed Jun. 12, 1980, Ser. No. 158,644
Term of patent 14 years
Int. Cl. D23—*03*
U.S. Cl. D23—97

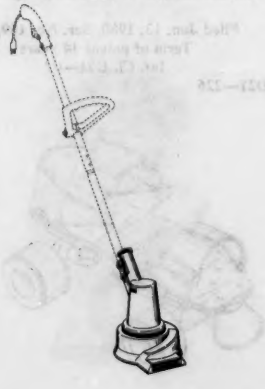
265,501
DEODORANT DISPENSER FOR A TOILET TANK OR THE LIKE
John P. Cotes, 2300 S. Lewis, Space 64, Anaheim, Calif. 92802
Filed Jul. 30, 1980, Ser. No. 173,483
Term of patent 14 years
Int. Cl. D23—*04*
U.S. Cl. D23—150



265,502
CEILING FAN
Thomas L. Kearnes, Akron, Ohio, assignor to Questor Corporation, Toledo, Ohio
Filed Jul. 24, 1980, Ser. No. 171,668
Term of patent 14 years
Int. Cl. D23—*04*
U.S. Cl. D23—158



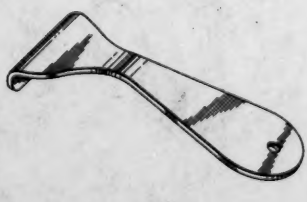
265,503
HOUSING FOR POWER BLOWER
Charles C. Krug, Saginaw, Tex., assignor to K & S Industries, Inc., Fort Worth, Tex.
Filed Jul. 30, 1980, Ser. No. 173,793
Term of patent 14 years
Int. Cl. D23—*04*
U.S. Cl. D23—163



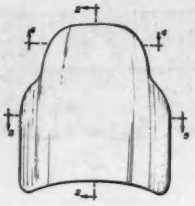
265,504
OTOSCOPE
Lewis H. Nash, P.O. Box 300, Ferndale, Calif. 95536
Filed May 16, 1980, Ser. No. 150,196
Term of patent 14 years
Int. Cl. D24—*02*
U.S. Cl. D24—9

265,505
ELECTRONIC SPHYGMOMANOMETER
Nobuo Kaneda, Tokyo, Japan, assignor to Bristoline, Inc., Freeport, N.Y.
Filed Jun. 18, 1979, Ser. No. 49,359
Term of patent 14 years
Int. Cl. D24—*02*
U.S. Cl. D24—21

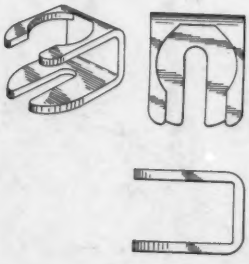
265,506
TONGUE SCRAPER
Peter G. Finamore, 1791 Lakeside Dr., Youngstown, Ohio 44509
Filed May 30, 1979, Ser. No. 43,712
Term of patent 14 years
Int. Cl. D24—*02*
U.S. Cl. D24—23



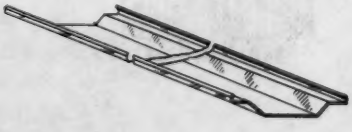
265,507
PROSTHETIC NAIL
E. Olayinka Ogunro, 625 Ray Ave., DeSota, Tex. 75115
Filed Jun. 2, 1980, Ser. No. 155,436
Term of patent 14 years
Int. Cl. D28—*03*
U.S. Cl. D24—33



265,508
COMBINED BOTTLE NECK CLAMP AND TUBE HOLDER
Robert K. Rusteberg, Barrington Hills, Ill., assignor to Panimatic Company, Elk Grove Village, Ill.
Filed May 27, 1980, Ser. No. 153,549
Term of patent 14 years
Int. Cl. D24—*02*
U.S. Cl. D24—52

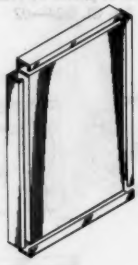


265,509
ELONGATED CEILING PANEL OR SIMILAR ARTICLE
Stephen Popek, Warren, Ohio, assignor to Alcan Aluminum Corporation, Cleveland, Ohio
Filed May 7, 1979, Ser. No. 36,900
Term of patent 14 years
Int. Cl. D25—*01*
U.S. Cl. D25—74



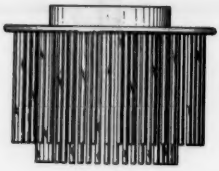
265,510
ASPHALT STRIP ROOFING SHINGLE OR SIMILAR ARTICLE
Paul E. Bedwell, Jr., 8235 Acapulco, Riverside, Calif. 92504
Filed May 5, 1980, Ser. No. 146,783
Term of patent 14 years
Int. Cl. D25—*01*
U.S. Cl. D25—80

265,511
PANEL STRUCTURE
Gunnar Svensson, Jonkoping, Sweden, assignor to AB Svenska Flaktfabriken, Nacka, Sweden
Division of Ser. No. 831,890, Sep. 9, 1977, abandoned. This application Apr. 2, 1980, Ser. No. 136,563
Term of patent 14 years
Int. Cl. D25—*01*
U.S. Cl. D25—92

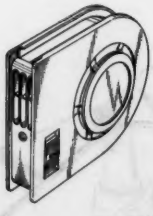


265,512
LIGHTING FIXTURE
Gerald E. Thurston, Cranford, N.J., assignor to Lightolier Incorporated, Jersey City, N.J.
Filed Jun. 30, 1980, Ser. No. 164,262
Term of patent 14 years
Int. Cl. D26—*05*
U.S. Cl. D26—85

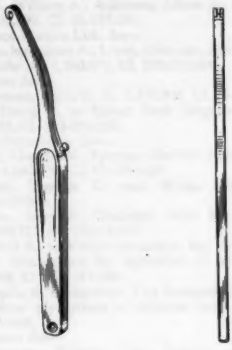
265,513
LIGHTING FIXTURE
Gerald E. Thurston, Cranford, N.J., assignor to Lightolier Incorporated, Jersey City, N.J.
Filed Jun. 30, 1980, Ser. No. 164,777
Term of patent 14 years
Int. Cl. D26—*05*
U.S. Cl. D26—85



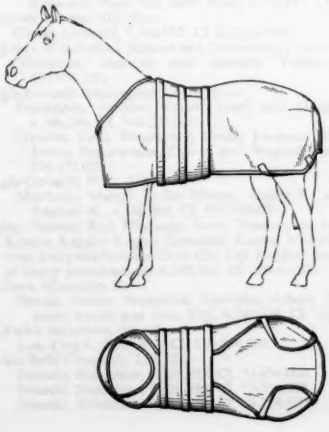
265,514
HAIR DRYER
Noboru Abe; Akio Goto, both of Kadoma, Japan, and Florian Seiffert, Grunwald, Fed. Rep. of Germany, assignors to Matsushita Electric Works, Ltd., Osaka, Japan
Filed Oct. 14, 1980, Ser. No. 196,979
Claims priority, application Japan, Apr. 14, 1980, 55-14867
Term of patent 14 years
Int. Cl. D28—*03*
U.S. Cl. D28—12



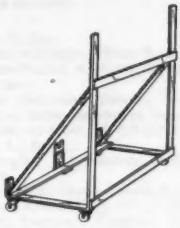
265,515
DENTAL FLOSSING INSTRUMENT
Steven K. Levine, 713 Washington St., New York, N.Y. 10014
Filed Jan. 15, 1979, Ser. No. 3,338
Term of patent 14 years
Int. Cl. D24—*99*; D28—*03*
U.S. Cl. D28—64



265,516
HORSE BLANKET
Roger M. Wacker, Stewart, Minn. 55385
Filed May 5, 1980, Ser. No. 146,502
Term of patent 14 years
Int. Cl. D30—*01*
U.S. Cl. D30—37



265,517
STORAGE CART
Richard S. Dunchock, Farmington Hills, Mich., assignor to SL Container Corporation, Southfield, Mich.
Filed May 2, 1980, Ser. No. 145,891
Term of patent 14 years
Int. Cl. D12—*02*
U.S. Cl. D34—17



265,518
STORAGE-PREVENTING BASE FOR SHOPPING CART
Daniel Berlin, Rydal, Pa., assignor to Roblin Industries, Inc., Battle Creek, Mich.
Filed May 2, 1980, Ser. No. 146,539
Term of patent 14 years
Int. Cl. D12—*02*
U.S. Cl. D34—17

265,519
CONTINUOUS SHEET MATERIAL OR THE LIKE
Donald T. Appleman, Cincinnati, Ohio, assignor to The Procter & Gamble Company, Cincinnati, Ohio
Filed Jun. 23, 1980, Ser. No. 162,465
Term of patent 14 years
Int. Cl. D5—*06*
U.S. Cl. D59—2 B

LIST OF PATENTEES

TO WHOM

PATENTS WERE ISSUED ON THE 20TH DAY OF JULY, 1982

NOTE.—Arranged in accordance with the first significant character or word of the name (in accordance with city and telephone directory practice).

A. B. Chance Company: *See—*
Klenk, William A.; Atkinson, Albert B.; and Bobbitt, Donald E., 4,339,899, Cl. 52-157.000.

A.T. Ramot Plastics Ltd.: *See—*
Kraus, Menahem A.; Livni, Avinoam; Nemas, Mara; and Frommer, Moshe A., 4,340,475, Cl. 210-232.000.

AB Carbox: *See—*
Pettersson, Bjorn O. A., 4,339,935, Cl. 72-57.000.

Abascal, David J., to Kaiser Steel Corporation. Adjustable tuyere. 4,340,209, Cl. 266-266.000.

Abbott Laboratories: *See—*
Fukui, George M.; Spencer, Herbert J.; and Williams, Laurens R., II, 4,340,679, Cl. 435-253.000.
Kriesel, Douglas C.; and Mehta, Shashi P., 4,340,582, Cl. 424-35.000.
Martin, Jerry R.; Tadanier, John S.; and Johnson, Paulette, 4,340,727, Cl. 536-16.100.

Abbott, Seth R., to Varian Associates, Inc. Anion exchange chromatographic composition for separation of polyfunctional compounds. 4,340,496, Cl. 252-184.000.

Abe, Masaru, to Bridgestone Tire Company Limited. Heavy load tire with plural ply groups of different cord diameter. 4,340,105, Cl. 152-354.00R.

Abe, Mitsuo: *See—*
Hashimoto, Hideaki; Abe, Mitsuo; and Morita, Masaharu, 4,340,779, Cl. 179-1.00B.

Aboelfotoh, Mohamed O.; and Skolnik, Marvin B., to International Business Machines Corporation. DC Gas discharge display panel with internal memory. 4,340,840, Cl. 315-58.000.

Abramovich, Dan: *See—*
Springett, Charles N.; Abramovich, Dan; Uyeda, Stanley T.; and Radu, E. John, 4,340,322, Cl. 405-168.000.

Abts, Leigh R.; and Beyer, Robert T., to Micro Pure Systems, Inc. Ultrasonic particulate identification. 4,339,944, Cl. 73-19.000.

Acharya, Vikramkumar; and Lakshmanan, Pallavoor R., to Gulf Oil Corporation. Hot melt adhesive compositions containing an alpha-methylstyrene/vinyl toluene copolymer. 4,340,687, Cl. 525-193.000.

Adams, Richard C., to Union Carbide Corporation. Galvanic dry cell employing a tapered cathode bobbin. 4,340,653, Cl. 429-133.000.

Adams, V. Dean; and Reynolds, James H., to International Environmental, Inc. Wastewater treatment process with pH adjustment. 4,340,489, Cl. 210-718.000.

Adibi, Siamak A. Nutrient compositions and method of administering the same. 4,340,592, Cl. 424-177.000.

Adlerwerke vorm Heinrich Kleyer A.G.: *See—*
Teichmann, Friedrich; and Wenderoth, Karl, 4,340,315, Cl. 400-690.400.

Adolph, Horst G.: *See—*
Lawrence, Gail W.; and Adolph, Horst G., 4,340,755, Cl. 564-233.000.

Aebi, Hans: *See—*
Kuhlmann, Gerhard; Kranzler, Ernst; Baer, Gerhard; Ruetsch, Kurt; Ramseier, Hansruedi; Dubach, Heinz; Lang, Martin; Schwartz, Hans; and Aebi, Hans, 4,340,831, Cl. 310-239.000.

Aerosol Service AG: *See—*
Obrist, Gerhard, 4,340,155, Cl. 222-135.000.

Agency of Industrial Science and Technology: *See—*
Nishizawa, Jun-ichi; and Hayashi, Yutaka, 4,340,827, Cl. 307-477.000.

Agfa-Gevaert Aktiengesellschaft: *See—*
Fernandez, Avelino; Glass, Josef; and Osegowitsch, Viktor, 4,340,294, Cl. 354-321.000.
Stemme, Otto; Staudacher, Frank; Lermann, Peter; Danhauser, Justus; Engelsmann, Dieter; and Wagner, Karl, 4,340,288, Cl. 354-171.000.

Agfa-Gevaert, N.V.: *See—*
Monbaliu, Marcel J.; De Winter, Walter F.; and Van Poucke, Raphael K., 4,340,664, Cl. 430-449.000.

Aiba, Takaaki; Kaji, Hisatsugu; Endo, Tomizo; and Ishihara, Takao, to Kureha Kagaku Kogyo Kabushiki Kaisha; Sumitomo Metal Industries, Ltd.; and Sumikin Coke Co., Ltd. Method for thermal cracking of heavy petroleum oil. 4,340,464, Cl. 208-40.000.

Aihara, Hisamoto: *See—*
Suzuki, Suzuo; Nakagawa, Yasuhiko; Aihara, Hisamoto; Matsumoto, Yasuo; and Sato, Yoji, 4,340,024, Cl. 123-538.000.

Airwick Industries, Inc.: *See—*
Lee, Ping I., 4,340,491, Cl. 210-764.000.

Aisin Seiki Company, Ltd.: *See—*
Iwasaki, Shinichiro, 4,339,953, Cl. 73-654.000.
Iwasaki, Shinichiro, 4,339,955, Cl. 73-728.000.
Iwasaki, Shinichiro, 4,339,956, Cl. 73-728.000.

Aisslinger, Dieter E.: *See—*
Pusch, Gunter; Aisslinger, Dieter E.; Hoffmann, Alexander; and Pusch, Klaus-Werner, 4,340,634, Cl. 428-134.000.

Akagami, Akira: *See—*
Ohno, Akira; Katayama, Shitomi; Nomura, Suguru; Senaha, Susumu; Kyo, Suizo; Shimomura, Susumu; Akagami, Akira; and Imai, Hiroshi, 4,340,646, Cl. 428-429.000.

Akesson, Rolf A. L.: *See—*
Wahren, Douglas; and Akesson, Rolf A. L., 4,340,011, Cl. 118-410.000.

AKG Akustische u. Kino-Gerate Gesellschaft-mbH: *See—*
Gorike, Rudolf, 4,340,787, Cl. 179-121.00D.

Akiba, Shigeyuki; Suematsu, Yasuharu; Arai, Shigehisa; Kodaira, Masanobu; Itaya, Yoshio; Iga, Kenichi; Ota, Chuichi; Yamamoto, Takaya; and Sakai, Kazuo, to Kokusai Denshin Denwa Kabushiki Kaisha. Semiconductor laser with buffer layer. 4,340,966, Cl. 372-45.000.

Akimoto, Koji: *See—*
Hata, Naoaki; Kojo, Hidehiko; and Akimoto, Koji, 4,340,716, Cl. 528-100.000.

Aktiebolaget Karlstads Mekaniska Werkstad: *See—*
Wahren, Douglas; and Akesson, Rolf A. L., 4,340,011, Cl. 118-410.000.

Akzo NV: *See—*
Frassek, Karl-Heinz; and van Ooij, Willy J., 4,340,515, Cl. 524-274.000.
Kik, Leendert A.; Schuurink, Pieter H. J.; and De Vries, Marinus J., 4,340,622, Cl. 427-299.000.
Noomem, Arie, 4,340,453, Cl. 204-159.150.

Alanco, Lars-Erik: *See—*
Koutonen, Pauli; and Alanco, Lars-Erik, 4,339,904, Cl. 53-137.000.

Albany International Corp.: *See—*
Skelton, John; Clark, Richard E.; and Davis, Robert B., 4,340,091, Cl. 139-383.00R.

Albright & Wilson Limited: *See—*
Edwards, Alfred G., 4,340,700, Cl. 525-503.000.

Alcan Research & Development Limited: *See—*
Jack, Stanton E.; and Dark, Robert O., 4,340,273, Cl. 350-105.000.

Alco Electronic Products, Inc.: *See—*
Kirchoff, Francis D., 4,340,793, Cl. 200-268.000.

Alcolac Inc.: *See—*
Sandri, Joseph M.; Calentine, John W.; Linder, Seymour M.; and Billioux, Yves J., 4,340,743, Cl. 548-318.000.

Aldred, Alan C. G.; and Weeks, Brian, to British Petroleum Company Limited, The. Polymer/bituminous material blends, process for making articles from such blends and articles made by the process. 4,340,517, Cl. 524-59.000.

Alexander, John A.: *See—*
Lindman, William E.; and Alexander, John A., 4,340,473, Cl. 210-173.000.

Alfa Farmaceutici, S.p.A.: *See—*
Borzatta, Valerio; Cristofori, Manlio; and Brazzi, Angelo, 4,340,585, Cl. 424-79.000.

Ali, Ramadan A.; Muller, Heinz; Lehmann, Karl-Heinz; Artzt, Peter; and Schenek, Anton, to Schubert & Salzer. Open-end spinning machine. 4,339,910, Cl. 57-411.000.

Allied Corporation: *See—*
Anello, Louis G.; Eibeck, Richard E.; and Robinson, Martin A., 4,340,548, Cl. 260-544.00Y.
Anello, Louis G.; and Sweeney, Richard F., 4,340,762, Cl. 568-24.000.
Bridges, Jack E.; and Frazier, Marvin J., 4,340,770, Cl. 174-35.0MS.
Yee, Kwok C.; Preziosi, Anthony F.; Patel, Gordhanbhai N.; Chance, Ronald R.; Miller, Granville G.; and Baughman, Ray H., 4,339,951, Cl. 374-162.000.

Allied Paper Incorporated: *See—*
Whalen-Shaw, Michael J.; and Thiessen, Robert J., 4,340,659, Cl. 430-64.000.

Alter, Larry D., to E-Systems, Inc. Continuously variable piezoelectric crystal delay line. 4,340,872, Cl. 333-152.000.

Altman, Wilbur E.; and McQuay, William C. Multi-purpose water outlet and accessories. 4,339,850, Cl. 17-69.000.

Aluminum Pechiney: *See—*
Hanrot, Jean-Pascal; and Volpeliere, Jacky, 4,340,136, Cl. 193-15.000.

ALZA Corporation: *See—*
Eckenhoff, James B., 4,340,048, Cl. 128-213.00R.
Michaels, Alan S., 4,340,054, Cl. 128-260.000.

AM International, Inc.: *See—*
Troxel, Donald E., 4,340,912, Cl. 358-283.000.

Amaya, Nestor R.: *See*—
Stumpp, Gerhard; Eblen, Ewald; Hofmann, Karl; Amaya, Nestor R.; Schlagenhauf, Josef; and Kopse, Odon, 4,340,181, Cl. 239-533.300.

Amend, William E.: *See*—
Hays, Lance G.; Amend, William E.; and Hokenson, Gustave J., 4,339,923, Cl. 60-673.000.

Amerace Corporation: *See*—
Johnson, Glenn W., Jr.; and Heenan, Sidney A., 4,340,319, Cl. 404-16.000.

American Cyanamid Company: *See*—
Lovell, James B., 4,340,608, Cl. 424-300.000.
Tomcufcik, Andrews S.; Wright, William B., Jr.; and Marsico, Joseph W., Jr., 4,340,734, Cl. 544-282.000.
Wang, Samuel S.; and Scanlon, Michael J., 4,340,467, Cl. 209-166.000.

American Enviro-Port, Inc.: *See*—
Mixon, James A., 4,340,472, Cl. 210-104.000.

American Hospital Supply Corporation: *See*—
Heil, Donald J., 4,340,366, Cl. 433-82.000.

AMF Incorporated: *See*—
Arthur, Ronald H., 4,340,795, Cl. 200-295.000.

Ammann, David W.; and Granzow, Daniel B., to Baxter Travenol Laboratories, Inc. Connector member for sealed conduits. 4,340,097, Cl. 141-98.000.

Anazawa, Shinzo; and Kozu, Hideaki, to Nippon Electric Co., Ltd. Lead connecting structure for a semiconductor device. 4,340,901, Cl. 357-68.000.

Andersen, Clifford H.: *See*—
Bazarian, Albert; Scannell, John W.; and Andersen, Clifford H., 4,340,923, Cl. 361-120.000.

Anderson, Ernest L. Three point hitch adaptor for a tractor. 4,340,240, Cl. 280-461.00A.

Anderson, George D., II. Rafter support jig. 4,340,100, Cl. 145-1.00R.

Anderson, Paul R.; and Miller, Wayne J., to United States of America, Energy. Method of forming cavitated objects of controlled dimension. 4,340,407, Cl. 65-21.400.

Anderson, Roland M.: *See*—
Klein, Paul E.; and Anderson, Roland M., 4,340,363, Cl. 433-18.000.

Anderson, Thomas E., to General Electric Company. Keep-alive circuit for gas discharge lamp. 4,340,843, Cl. 315-205.000.

Ando, Yujiro: *See*—
Ohara, Katsunobu; Tanaka, Keiji; Ando, Yujiro; and Moriyama, Inao, 4,340,296, Cl. 355-35.00C.

Andrews, Donald. Apparatus for drying fish, especially squid. 4,339,884, Cl. 34-93.000.

Anello, Louis G.; Eibeck, Richard E.; and Robinson, Martin A., to Allied Corporation. Process for the preparation of perhaloalkanoyl chloride. 4,340,548, Cl. 260-544.00Y.

Anello, Louis G.; and Sweeney, Richard F., to Allied Corporation. Gas phase synthesis of bis(trifluoromethyl) disulfide. 4,340,762, Cl. 568-24.000.

Angel, Boris S.: *See*—
Chichkin, Valentin P.; Shpigel, Efraim A.; Gokin, Gennady P.; Matjuschenko, Georgy E.; Kurakov, Nikolai N.; Rabinovich, Grigory B.; Samoilovsky, Sergei A.; Angel, Boris S.; Ilienko, Vladimir S.; Miterev, Vladimir P.; Zemlyanov, Leonid S.; and Krutkov, Anatoly F., 4,339,906, Cl. 56-327.00R.

Anlauf, Jurgen; and Jonner, Wolf-Dieter, to Robert Bosch GmbH. Method of testing the operativeness of a control system. 4,340,935, Cl. 364-426.000.

Anson, Michael; Chung, Shin-Ho; and Pettigrew, Alan G., to National Research Development Corporation. Measurement of small movements. 4,339,954, Cl. 73-657.000.

Antonik, Steve J., to National Repellents, Inc. Repellant composition and method of use. 4,340,587, Cl. 424-95.000.

Aoki, Tadao; Miyakoshi, Hideo; Hirasawa, Yoshihei; and Nishii, Yasuo, to Chugai Seiyaku Kabushiki Kaisha. Method for inhibiting the lowering of immunological function and agent therefor. 4,340,604, Cl. 424-236.000.

Appel, David W.; and Morman, Michael T., to Kimberly-Clark Corporation. Method for forming nonwoven webs. 4,340,563, Cl. 264-518.000.

Arai, Fuminori: *See*—
Kitajima, Masao; Arai, Fuminori; and Kondo, Asaji, 4,340,565, Cl. 422-56.000.

Arai, Shigehisa: *See*—
Akiba, Shigeyuki; Suematsu, Yasuharu; Arai, Shigehisa; Kodaira, Masanobu; Itaya, Yoshio; Iga, Kenichi; Ota, Chuichi; Yamamoto, Takaya; and Sakai, Kazuo, 4,340,966, Cl. 372-45.000.

Archer, Fred C., to Spokane Crusher Mfg. Co. Vibratory screen apparatus. 4,340,469, Cl. 209-315.000.

Arco Industries Ltd.: *See*—
D'Andrade, Bruce M.; Tsui, Kwok W.; and Yuen, Sing C. J., 4,340,373, Cl. 434-174.000.

Arcomac S.A.: *See*—
Demiere, Armand, 4,339,855, Cl. 26-103.000.

Armco Inc.: *See*—
Lawson, John E., 4,340,117, Cl. 166-341.000.

Arnal, Claude; Pompon, Jean-Barnard; and Roullet, Robert, to Chloe Chimie. Method of preparing homo and co-polymers of vinyl chloride adapted to give plastisols from a latex containing two populations of particles. 4,340,722, Cl. 528-480.000.

Arnold, William P., to University of Virginia, The. Rapid, semi-automated method for determining dibucaine numbers. 4,340,667, Cl. 435-20.000.

Arora, Manohar L.; Overway, Timothy A.; and Foye, Thomas E., to BASF Wyandotte Corporation. Pigment flushing. 4,340,431, Cl. 106-262.000.

Arthur, Ronald H., to AMF Incorporated. Panel mount adapter for switches. 4,340,795, Cl. 200-295.000.

Artzer, Richard F., to Covington Brothers Technologies. Method and apparatus for welding. 4,340,802, Cl. 219-56.000.

Artzt, Peter: *See*—
Ali, Ramadan A.; Muller, Heinz; Lehmann, Karl-Heinz; Artzt, Peter; and Schenek, Anton, 4,339,910, Cl. 57-411.000.

Asahi Denka Kogyo K.K.: *See*—
Hata, Naoaki; Kojo, Hidehiko; and Akimoto, Koji, 4,340,716, Cl. 528-100.000.

Asahi-Dow Limited: *See*—
Wada, Akihiro; Tazaki, Kichiya; Tahara, Tamotsu; Suzuki, Hiroshi; and Mizutani, Yukihisa, 4,340,551, Cl. 264-25.000.

Asahi Glass Company, Limited: *See*—
Asawa, Tatsuro; Yamabe, Masaaki; and Miyake, Haruhisa, 4,340,680, Cl. 521-27.000.
Yamabe, Masaaki; Kumai, Seisaku; and Munekata, Seiji, 4,340,750, Cl. 560-183.000.

Asahi Kasei Kogyo Kabushiki: *See*—
Mishiro, Mashahiro; Nishikawa, Tokio; Ohashi, Shigeyasu; and Yokokawa, Yasuo, 4,340,481, Cl. 210-500.200.

Asakawa, Shirow: *See*—
Yamashita, Akio; and Asakawa, Shirow, 4,340,624, Cl. 428-1.000.

Asano, Masamichi; and Iwahashi, Hiroshi, to Tokyo Shibaura Denki Kabushiki Kaisha. Memory device utilizing MOS FETs. 4,340,943, Cl. 365-194.000.

Asano, Tetsumasa; Fujimoto, Mitsuhiro; and Mizukawa, Ryuichi, to Mitsubishi Denki Kabushiki Kaisha. Wind control apparatus for air conditioner. 4,339,991, Cl. 98-40.0VM.

Asawa, Tatsuro; Yamabe, Masaaki; and Miyake, Haruhisa, to Asahi Glass Company, Limited. Cation exchange membrane of fluorinated polymer for an electrolysis. 4,340,680, Cl. 521-27.000.

ASEA Aktiebolag: *See*—
Hede, Allan, 4,340,432, Cl. 148-11.50P.

Askman, Lars; Wetzel, Pierre; and Isely, Alain, to Societe d'Assistance Technique pour Produits Nestle S.A. Process for spinning fish proteins. 4,340,612, Cl. 426-276.000.

Asnets: *See*—
Bernard, Jacques, 4,340,176, Cl. 239-102.000.

Asquith, Dixon R.: *See*—
Story, Alfred D.; and Asquith, Dixon R., 4,339,894, Cl. 51-281.00R.

Astakhov, Igor A.: *See*—
Romashov, Alexandr A.; Levinsky, Gennady E.; Ivantsov, Vladimir Y.; Astakhov, Igor A.; and Kuznetsov, Vladimir A., 4,340,163, Cl. 228-19.000.

Aston, William C.; and Walker, Derek, to IMI Yorkshire Imperial Plastics Limited. Apparatus for manufacture of thermoplastics pipe. 4,340,344, Cl. 425-149.000.

Atkin, Rupert L., to TRW Inc. Power steering apparatus. 4,339,986, Cl. 91-375.00A.

Atkinson, Albert B.: *See*—
Klenk, William A.; Atkinson, Albert B.; and Bobbitt, Donald E., 4,339,899, Cl. 52-157.000.

Audio Dynamics Corporation: *See*—
Kuehn, John P., 4,340,957, Cl. 369-256.000.

Aument, Patrick E.: *See*—
de la Burde, Roger Z.; and Aument, Patrick E., 4,340,073, Cl. 131-291.000.

Austin, Stewart S.: *See*—
Smith, Henry I.; Austin, Stewart S.; and Flanders, Dale C., 4,340,305, Cl. 356-356.000.

Australian Telecommunications Commission: *See*—
English, Kevin S., 4,340,875, Cl. 333-166.000.

Austung Proprietary Limited: *See*—
Springborn, Karl S., 4,340,350, Cl. 425-409.000.

Automatic Connector, Inc.: *See*—
Ott, Conrad L.; and Ris, George E., 4,340,265, Cl. 339-14.00R.

Avco Corporation: *See*—
DeBolt, Harold E.; Suplinskas, Raymond J.; Cornie, James A.; Henze, Thomas W.; and Hauze, Albert W., 4,340,636, Cl. 428-215.000.

Awadalla, Makary M., to Northern Telecom Limited. Ringing signal supply. 4,340,785, Cl. 179-51.0AA.

Aya, Toshihiko; and Kubo, Yasushi, to Toray Industries, Inc. Heat resistant molding resin composition. 4,340,697, Cl. 525-420.000.

Ayers, William M.: *See*—
Maheshwary, Ashok K.; and Ayers, William M., 4,340,321, Cl. 405-66.000.

Azegami, Hitoshi: *See*—
Ota, Hiroshi; Horigome, Eiji; and Azegami, Hitoshi, 4,340,644, Cl. 428-423.700.

B.A.G., Inc.: *See*—
Smith, Dennis M., 4,340,042, Cl. 128-87.00R.

B. F. Goodrich Company, The: *See*—
Conrady, James A.; and Driscoll, William J., 4,340,648, Cl. 428-518.000.
Huddleston, George R., Jr.; and Turner, James W., 4,340,702, Cl. 526-70.000.
Kim, Heung T., 4,340,342, Cl. 425-72.00R.

B.P.A. Enterprises, Inc.: *See*—
Dopkowski, William J., 4,340,227, Cl. 273-77.00R.

Baba, Keiichi: *See*—
Tsuchihashi, Michihiro; Saito, Masato; Baba, Keiichi; and Matsushima, Yusaku, 4,340,844, Cl. 315-283.000.

Babcock-BSH AG: *See*—
Bahner, Friedrich; and Pleva, Harry, 4,339,949, Cl. 73-204.000.

Babel, Werner, to Maho Werkzeugmaschinenbau Babel & Co. Switching device for variable speed gears in machine tools. 4,339,962, Cl. 74-335.000.

Backhouse, Alan J.; and Palluel, Auguste L., to Imperial Chemical Industries Limited. Production of polymer microparticles and coating compositions containing them. 4,340,511, Cl. 524-504.000.

Baer, Gerhard: *See*—
Kuhlmann, Gerhard; Kranzler, Ernst; Baer, Gerhard; Ruetsch, Kurt; Ramseier, Hansruedi; Dubach, Heinz; Lang, Martin; Schwartz, Hans; and Aebi, Hans, 4,340,831, Cl. 310-239.000.

Bahner, Friedrich; and Pleva, Harry, to Babcock-BSH AG. Process and apparatus for the thermal measurement of mass flow. 4,339,949, Cl. 73-204.000.

Bailey, Edward A.; and LeBlanc, Louis H., Jr., to Joy Manufacturing Company. Pneumatic rock drills. 4,340,121, Cl. 173-134.000.

Bakula, Richard E.; Maly, Dennis L.; and Weemhoff, James H., to Harris Corporation. Dual mapping memory expansion unit. 4,340,932, Cl. 364-200.000.

Balasubramanian, N. Optical system for surface topography measurement. 4,340,306, Cl. 356-360.000.

Balding, George H. Photographic printer and color film analyzer apparatus. 4,340,905, Cl. 358-80.000.

Ball Corporation: *See*—
Gross, Robert M., 4,340,557, Cl. 264-146.000.

Ball, Geoffrey; Deadman, Harry A.; Smith, John G.; and Vokes, John C., to United Kingdom of Great Britain and Northern Ireland, The Secretary of State for Defence in Her Britannic Majesty's Government of the. Series-connected two-terminal semiconductor devices and their fabrication. 4,339,870, Cl. 29-576.00B.

Baltes, Herbert; Leupold, Ernst I.; and Wunder, Friedrich, to Hoechst Aktiengesellschaft. Process for the manufacture of glyoxylic acid esters. 4,340,748, Cl. 560-177.000.

Bankes, Kristen E.; Large, Donald M.; and Reinhard, Fred J., to Western Electric Co., Inc. Decelerating and reorienting elongated magnetic articles. 4,340,323, Cl. 406-83.000.

Banks, Kenneth E., to Chemetron Corporation. Welding electrode with a fluoride based slag system. 4,340,805, Cl. 219-146.230.

Bar, Helmut; Mader, Herbert; Muck, Karl-Friedrich; and Zorner, Paul, to Hoechst Aktiengesellschaft. Process and equipment for the continuous manufacture of trioxan. 4,340,542, Cl. 549-368.000.

Bardwell, Robert G. Method and apparatus for extrusion coating of a cable involving guider tip protection from an oversized portion of the cable. 4,340,554, Cl. 264-40.700.

Barmag Barmer Maschinenfabrik: *See*—
Dammann, Peter; Schippers, Heinz; and Bauer, Karl, 4,339,915, Cl. 57-339.000.
Schippers, Heinz; Hufer, Norbert; Munnekehoff, Gerd; and Teich, Udo, 4,340,187, Cl. 242-35.50A.

Barnert, Konrad; and Lohner, Ingolf, to Volkswagenwerk Aktiengesellschaft. Internal combustion diesel engine. 4,340,019, Cl. 123-256.000.

Barnes, Gary T., to University of Alabama, The Board of Trustees of the. Scanning grid apparatus for suppressing scatter in radiographic imaging. 4,340,818, Cl. 250-509.000.

Barnes Group Inc.: *See*—
Zavatkay, Robert J., 4,340,190, Cl. 242-107.000.
Zavatkay, Robert J., 4,340,191, Cl. 242-107.000.

Barrett, Charles A.: *See*—
United States of America, National Aeronautics and Space Administration; Barrett, Charles A.; Lowell, Carl E.; and Khan, Abdus S., 4,340,425, Cl. 148-428.000.

Barrett, Michael G.: *See*—
Vaughan, David E. W.; Edwards, Grant C.; and Barrett, Michael G., 4,340,573, Cl. 423-328.000.

Barsi, Karoly; Dorombozi, Laszlo; Forisek, Istvan; Kuburczik, Gyula; and Stuber, Gyorgy, to Tatabanyai Szenbanyak. Method of mining heavy coal seams in two or more benches. 4,340,254, Cl. 299-11.000.

Bart, Max: *See*—
Harte, Richard A.; and Bart, Max, 4,340,564, Cl. 422-56.000.

Barton, Lyndon O. Dual timing apparatus. 4,340,947, Cl. 368-93.000.

BASF Aktiengesellschaft: *See*—
Derendorf, Walter; and Huber, Manfred, 4,340,188, Cl. 242-68.500.
Dockner, Toni; Kempe, Uwe; Krug, Herbert; Magnussen, Peter; and Praetorius, Werner, 4,340,745, Cl. 548-347.000.
Eicken, Karl; and Wuerzer, Bruno, 4,340,418, Cl. 71-92.000.
Eilingsfeld, Heinz; Hansen, Guenter; and Seybold, Guenther, 4,340,537, Cl. 260-158.000.
Franke, Albrecht; Lenke, Dieter; Gries, Josef; and Lehmann, Hans D., 4,340,595, Cl. 424-244.000.
Kempter, Fritz E.; and Schupp, Eberhard, 4,340,455, Cl. 204-181.00C.
Klahr, Erhard; Hettche, Albert; Trieselt, Wolfgang; Stoeckigt, Dieter; and Trapp, Horst, 4,340,766, Cl. 568-625.000.
Lotsch, Wolfgang; and Kemper, Reinhard, 4,340,735, Cl. 544-300.000.
Naarmann, Herbert; Naegele, Dieter; Penzien, Klaus; and Schlag, Johannes, 4,340,507, Cl. 252-512.000.
Ohlinger, Manfred; Vaeth, Guenter; Mueller, Norbert; and Wettstein, Eugen, 4,340,494, Cl. 252-62.560.
Pich, Claus H.; and Moest, Thomas, 4,340,614, Cl. 426-649.000.
Plath, Peter; Eicken, Karl; and Rohr, Wolfgang, 4,340,739, Cl. 548-236.000.
Rapp, Guenther; Jockers, Kurt; and Thomas, Erwin, 4,340,575, Cl. 423-387.000.
Schupp, Eberhard; Kempter, Fritz E.; and Gulbins, Erich, 4,340,714, Cl. 528-99.000.
Schwarz, Helmut; Dockner, Toni; Kempe, Uwe; Krug, Herbert; Praetorius, Werner; Magnussen, Peter; Gallei, Ewald; and Fehr, Erich, 4,340,744, Cl. 548-346.000.

BASF Wyandotte Corporation: *See*—
Arora, Manohar L.; Overway, Timothy A.; and Foye, Thomas E., 4,340,431, Cl. 106-262.000.

Bassett, Ronald M. Plant supporting and watering device. 4,339,891, Cl. 47-71.000.

Bastida, Ezio M., to CISE Centro Informazioni Studi Esperienze S.p.A. Periodic transmission structure for slow wave signals, for miniaturized monolithic circuit elements operating at microwave frequency. 4,340,873, Cl. 333-161.000.

Bauer, Brady G.: *See*—
Parke, Patrick P.; Bauer, Brady G.; Meitl, Kenneth G.; Thompson, Wayne L.; and Voegeli, Thomas J., 4,340,182, Cl. 239-680.000.

Bauer, Karl: *See*—
Dammann, Peter; Schippers, Heinz; and Bauer, Karl, 4,339,915, Cl. 57-339.000.

Bauer, Robert, to Miles Laboratories, Inc. System for the determination of glucose in fluids. 4,340,669, Cl. 435-14.000.

Bauer, Timothy R., to Precision Metalsmiths, Inc. Ceramic shell molding apparatus and methods. 4,340,107, Cl. 164-35.000.

Baughman, Ray H.: *See*—
Yee, Kwok C.; Preziosi, Anthony F.; Patel, Gordhanbhai N.; Chance, Ronald R.; Miller, Granville G.; and Baughman, Ray H., 4,339,951, Cl. 374-162.000.

Baumann, Eduard; and Kniel, Roger, to Zellweger Limited. Method and apparatus for signal recognition in a remote control system with influencing of the zero point transition of the alternating-current mains voltage. 4,340,880, Cl. 340-310.00R.

Baxter Travenol Laboratories, Inc.: *See*—
Ammann, David W.; and Granzow, Daniel B., 4,340,097, Cl. 141-98.000.
Beckham, David S., 4,340,148, Cl. 215-329.000.
Dennehey, T. Michael; Greff, Richard J.; and Wolf, Ludwig, Jr., 4,340,052, Cl. 128-247.000.
Ekholm, Carl R., Jr., 4,340,152, Cl. 222-1.000.
Munsch, John M., 4,340,049, Cl. 128-214.00R.

Bayer Aktiengesellschaft: *See*—
Hermann, Karl H., 4,340,540, Cl. 548-440.000.
Lieb, Folker; Oediger, Hermann; and Streible, Gert, 4,340,599, Cl. 424-212.000.
Nolte, Wilfried; and Esser, Heinz, 4,340,518, Cl. 524-61.000.
Nonn, Konrad; Laser, Joachim; Wolf, Karlheinz; Hornle, Reinhold; and Istel, Erich, 4,340,389, Cl. 8-620.000.
Reichmann, Wolfgang; Konig, Klaus; and Schonfelder, Manfred, 4,340,712, Cl. 528-45.000.
Rossert, Michael; and Dhein, Rolf, 4,340,688, Cl. 525-256.000.
Schubart, Rudiger; Eholzer, Ulrich; Kempermann, Theo; and Roos, Ernst, 4,340,695, Cl. 525-350.000.

Bazarian, Albert; Scannell, John W.; and Andersen, Clifford H., to General Instrument Corporation. Electrical circuit protector. 4,340,923, Cl. 361-120.000.

BBC Brown, Boveri & Company Limited: *See*—
Eggmann, Jean; Graf, Hans; and Zaba, Tadeusz, 4,339,925, Cl. 60-757.000.
Kaufmann, Meinolph; and Kmetz, Allan R., 4,340,277, Cl. 350-347.00E.

Becker, Bernard: *See*—
Meyer-Pittroff, Roland; Becker, Bernard; and Finckh, Hermann, 4,340,820, Cl. 290-40.00R.

Becker, Karl E., Jr. Intravenous tubing clamping device. 4,340,201, Cl. 251-6.000.

Beckham, David S., to Baxter Travenol Laboratories, Inc. Luer cap. 4,340,148, Cl. 215-329.000.

Beckman Instruments, Inc.: *See*—
Diamond, Allen M.; and Ratz, Richard D., 4,340,307, Cl. 356-418.000.
Hein, George N., Jr., 4,340,171, Cl. 233-23.00R.

Beckman, John T.; and Sanik, Paul S., to Owens-Corning Fiberglas Corporation. Method of and apparatus for detecting and circumventing malfunctions in a current-loop communications system. 4,340,965, Cl. 371-62.000.

Becton, Dickinson & Company: *See*—
Darner, James C., 4,340,157, Cl. 222-211.000.
Kaufman, Joseph, 4,340,068, Cl. 128-766.000.

Beffa, Fabio, to Ciba-Geigy Corporation. Chrome-complex dyes and the production and use thereof. 4,340,536, Cl. 260-145.00A.

Begun, James A. Solar collector. 4,340,035, Cl. 126-438.000.

Bekierkunst, Adam; and Cohen, Haim A. Pharmaceutical preparation for treating disorders of the skin. 4,340,586, Cl. 424-92.000.

Belart, Juan, to ITT Industries, Inc. Hydraulic brake system. 4,340,257, Cl. 303-114.000.

Belknap, James L.; and Coppin, William P., to Maxon Corporation. Nozzle mixing line burner. 4,340,180, Cl. 239-422.000.

Bell Telephone Laboratories, Incorporated: *See*—
Beni, Gerardo; Rice, Catherine E.; and Shay, Joseph L., 4,340,278, Cl. 350-357.000.
DeCosta, John; Mallos, James B.; and Roe, David B., 4,340,777, Cl. 178-18.000.

Dixon, Richard W.; and Schwartz, Bertram, 4,340,967, Cl. 372-46.000.
Jin, Sungho; and Tiefel, Thomas H., 4,340,434, Cl. 148-31.550.
Jin, Sungho; and Tiefel, Thomas H., 4,340,435, Cl. 148-31.570.
Moran, John C., 4,340,960, Cl. 370-62.000.
Okinaka, Yutaka; and Wolowodiuk, Catherine, 4,340,451, Cl. 204-46.00G.
Scalera, Michael, 4,340,268, Cl. 339-18.00R.
Scordo, Dominick, 4,340,863, Cl. 328-63.000.

Bellinger, James E., to Florida Data Corporation. Printer arm. 4,340,165, Cl. 228-173.00C.

Beloit Corporation: *See—*
Justus, Edgar J., 4,340,623, Cl. 427-361.000.

Belongia, Clyde G.: *See—*
Hibbard, Neil K.; Kinsey, Cliff J.; and Belongia, Clyde G., 4,340,039, Cl. 128-66.000.

Ben-Shmuel, Dan; and Zacuto, Philip, to Woodside Construction, Inc. Process for recovering heat from stack or flue gas. 4,340,572, Cl. 423-242.000.

Bendix Corporation, The: *See—*
Brooks, Mark A.; and Miler, Jane, 4,340,409, Cl. 65-43.000.

Beneteau, Stanley A.: *See—*
Proulx, Sylvester E.; and Beneteau, Stanley A., 4,340,328, Cl. 408-239.00A.

Beni, Gerardo; Rice, Catherine E.; and Shay, Joseph L., to Bell Telephone Laboratories, Incorporated. Electrochromic device. 4,340,278, Cl. 350-357.000.

Bennett, M. Owen: *See—*
Cowans, Kenneth W.; and Bennett, M. Owen, 4,340,778, Cl. 179-1.00D.

Bennett Sound Corporation: *See—*
Cowans, Kenneth W.; and Bennett, M. Owen, 4,340,778, Cl. 179-1.00D.

Berg, Floyd L. Warning indicator for a camera. 4,340,291, Cl. 354-215.000.

Berger, Joel G.: *See—*
Gold, Elijah H.; Berger, Joel G.; and Chang, Wei K., 4,340,597, Cl. 424-256.000.

Berger, Michael A., to Datamarc, Inc. Envelope feeding apparatus. 4,340,314, Cl. 400-625.000.

Bergman, Rolf S.; and Lake, William H., to General Electric Company. Electrode for miniature high pressure metal halide lamp. 4,340,836, Cl. 313-211.000.

Bergquist, Frank H., to Harper-Wyman Company. Safety latch control arrangement for self-cleaning oven. 4,340,806, Cl. 219-413.000.

Bergsoe, Svend, to Paul Bergsoe and Son A/S. Method of recovering lead from lead-acid batteries. 4,340,421, Cl. 75-25.000.

Berke, Joseph J.; and Gay, Eric L., to Berke, Joseph J. Flexible craniotome footplate. 4,340,060, Cl. 128-317.000.

Berkshire Research Partners: *See—*
Levy, Donald; and Rusz, Tibor, 4,340,044, Cl. 128-204.210.

Bernard, Jacques, to Asnets. All-purpose mobile scouring machine. 4,340,176, Cl. 239-102.000.

Bernard, William: *See—*
Bruhn, Alfred; and Bernard, William, 4,340,207, Cl. 266-155.000.

Bernhardt, Daniel. Multiple compartment multiple seal container. 4,340,138, Cl. 206-216.000.

Berry, David A.: *See—*
Hillenbrand, Louis J.; Preston, Joseph R.; and Berry, David A., 4,340,629, Cl. 428-64.000.

Berstermann, Wilhelm: *See—*
Grisar, Ulrich; and Berstermann, Wilhelm, 4,340,303, Cl. 356-313.000.

Beta Corporation of St. Louis: *See—*
Volk, Joseph A., Jr., 4,340,937, Cl. 364-468.000.

Betcher, Robert H. Security device and method for postage meter machines. 4,340,809, Cl. 235-101.000.

Better Agricultural Goals Corporation: *See—*
Williamson, Robert R., 4,340,379, Cl. 493-211.000.

Beyer, Robert T.: *See—*
Abts, Leigh R.; and Beyer, Robert T., 4,339,944, Cl. 73-19.000.

Bilane, Glenn B.; Rubin, Lawrence M.; Soffa, Albert; and Vilenski, Dan, to Kulicke & Soffa Industries, Inc. High speed wire bonding method. 4,340,166, Cl. 228-179.000.

Billioux, Yves J.: *See—*
Sandri, Joseph M.; Calentine, John W.; Linder, Seymour M.; and Billioux, Yves J., 4,340,743, Cl. 548-318.000.

BioResearch Inc.: *See—*
Kurtz, Leonard D., 4,340,348, Cl. 425-270.000.

Biphase Energy Systems: *See—*
Hays, Lance G.; Amend, William E.; and Hokenson, Gustave J., 4,339,923, Cl. 60-673.000.

Bishop, John W. H., to Ibex Inking Systems Corp. Business machine printing ribbon spool apparatus and method of inking the type slug impact portion of printing ribbons. 4,340,313, Cl. 400-202.100.

Bishop, Keith C., III: *See—*
Miller, Stephen J.; and Bishop, Keith C., III, 4,340,465, Cl. 208-120.000.

Bitskey, Jozsef: *See—*
Toth, Andras; Toth nee Palotai, Emese; Olah, Jozsef; Bitskey, Jozsef; and Bulkai, Lajos, 4,340,488, Cl. 210-705.000.

Black, Otis D.: *See—*
Packer, Marvin; and Black, Otis D., 4,340,167, Cl. 228-180.00R.

Blacker, Rose: *See—*
Jaffe, Fern; and Blacker, Rose, 4,339,835, Cl. 5-413.000.

Blanc GmbH & Co.: *See—*
Frank, Friedhelm, 4,340,041, Cl. 128-80.00C.

Blaszcak, Peter P., Jr.: *See—*
Kerkenbush, Darle L.; and Blaszcak, Peter P., Jr., 4,340,222, Cl. 273-61.00R.

Biersch, Arthur, to Zahnradfabrik Friedrichshafen AG. Device for sensing the engagement position of a clutch. 4,340,133, Cl. 192-30.00W.

Bloch, Daniel R.; Odders, Charles N.; and Rogers, John R., to S. C. Johnson & Son, Inc. Radiation induced graft polymerization. 4,340,057, Cl. 128-284.000.

Block, Andrew. Lock opening tool. 4,339,863, Cl. 29-426.400.

Bobbitt, Donald E.: *See—*
Klenk, William A.; Atkinson, Albert B.; and Bobbitt, Donald E., 4,339,899, Cl. 52-157.000.

Boddeker, Karl W.; and Wenzlaff, Axel, to Geseilschaft fur Kernenergieverwertung in Schiffbau und Schiffahrt GmbH. Semi-permeable asymmetrical membrance and process of producing same. 4,340,428, Cl. 106-122.000.

Bodor, Nicholas S.; Sloan, Kenneth B.; and Pogany, Stefano A., to INTERx Research Corporation. Novel inotropic prodrugs. 4,340,603, Cl. 424-301.000.

Boeing Company, The: *See—*
Robinson, Curtiss W.; and Clingman, Wilbur D., 4,340,271, Cl. 350-16.000.

Bohm, Georg G. A.; Hamed, Gary R.; and Vescelius, Lee E., to Firestone Tire & Rubber Company, The. Thermoplastic elastomer blends. 4,340,684, Cl. 525-194.000.

Boldt, Robert R.; and Nelson, Arthur R., to Dickey-john Corporation. Bearing and motor temperature monitor. 4,340,886, Cl. 340-682.000.

Boliver, Vincent J., to General Electric Company. Electrical switch with melamine loaded thermoplastic ablative material. 4,340,790, Cl. 200-144.00C.

Bolt, Anthony J. N.; and Chard, Brian C., to Imperial Group Limited. Smokeable device. 4,340,072, Cl. 131-273.000.

Bond, Gary M.: *See—*
Marshall, Albert H.; Shaw, Bon F.; Grimmer, Paul D.; Towle, Herbert C.; and Bond, Gary M., 4,340,370, Cl. 434-22.000.

Bonnebat, Claude; Roullet, Gilbert; and Vaginay, Yves, to Rhone-Poulenc Industries. Novel polyester for the packaging of comestibles. 4,340,721, Cl. 528-272.000.

Book, Walter R.; and Putetti, Anthony M., to Textron, Inc. Drawing heavy walled parts. 4,339,939, Cl. 72-349.000.

Borghi, Italo; Foschi, Sergio; and Galli, Paolo, to Montedison S.p.A. Thermoplastic rubbers and process for preparing same. 4,340,704, Cl. 526-125.000.

Borzatta, Valerio; Cristofori, Manlio; and Brazzi, Angelo, to Alfa Farmaceutici, S.p.A. Salified anionic resin for cholesterol and lipid lowering. 4,340,585, Cl. 424-79.000.

Bose, Biswa N. Cover plates for electrical utility and other boxes as used in concealed wiring system of buildings. 4,340,772, Cl. 174-51.000.

Bossetti, Renato, to Societa Impianti Termoelettrici Industriali (s.a.s.). Apparatus and process for discharging tiles from high speed ovens for the production of tiles. 4,340,358, Cl. 432-11.000.

Bourque, Don P., to University Patents, Inc. Method of crystallizing ribulose, 1,5-bisphosphate carboxylase/oxygenase from photosynthetic organisms, particularly plant leaves. 4,340,676, Cl. 435-232.000.

Boylan, Francis J., to Drew Chemical Corporation. Liquid defoamer and process of use thereof. 4,340,500, Cl. 252-321.000.

BP Chemicals Limited: *See—*
Laverick, Robert G.; and Scotland, James M., 4,340,447, Cl. 203-36.000.

Bradley, John J.: *See—*
Miu, Ming T.; Bradley, John J.; Panepinto, William, Jr.; and Shen, Jian-Kuo, 4,340,933, Cl. 364-200.000.

Brandenberg Energy Corporation: *See—*
Schulz, Helmut, 4,340,397, Cl. 48-74.000.

Brandenstein, Manfred: *See—*
Olschewski, Armin; Brandenstein, Manfred; Walter, Lothar; and Kunkel, Heinrich, 4,340,135, Cl. 192-98.000.

Brandes, Gunter; Neier, Wilhelm; Wollner, Johannes; Webers, Werner; and deVleesschauwer, Walter F., to Deutsche Texaco Aktiengesellschaft. Process for the continuous production of lower aliphatic alcohols. 4,340,769, Cl. 568-899.000.

Brassine, Robert L. Educational aid. 4,340,372, Cl. 434-88.000.

Braun, Ernst; and Braun, Gert, to Halbach & Braun. Roll crusher for crushing lumpy material. 4,340,185, Cl. 241-186.00R.

Braun, Gert: *See—*
Braun, Ernst; and Braun, Gert, 4,340,185, Cl. 241-186.00R.

Braun, John L.; Smith, Denver W.; and Ekey, William J., to McNeil Corporation. Method of testing the windings and insulation system of a motor by applying the test voltage before completing a path to ground. 4,340,853, Cl. 324-51.000.

Brazzi, Angelo: *See—*
Borzatta, Valerio; Cristofori, Manlio; and Brazzi, Angelo, 4,340,585, Cl. 424-79.000.

Breland, William M.; Guilinger, Terry R.; and Schechter, Robert S., to United States of America, Interior. Preflush-lixiviant process for solution mining of uranium ore beds. 4,340,253, Cl. 299-5.000.

Bremer, Robert C., Jr., to Wallace Murray Corporation. Tee-lock viscous damper. 4,339,963, Cl. 74-574.000.

Brenner, L. Martin; and Wardell, Joe R., Jr., to SmithKline Corporation. Renal dilating methods and compositions using 4-(3,4-dihydroxyphenyl)-1,2,3,4-tetrahydroisoquinolines. 4,340,600, Cl. 424-258.000.

Brenner, L. Martin, to SmithKline Corporation. Dopaminergic isoquinolines. 4,340,601, Cl. 424-258.000.

Bridges, Jack E.; and Frazier, Marvin J., to Allied Corporation. Enhancement of the magnetic permeability in glassy metal shielding. 4,340,770, Cl. 174-35.0MS.

Bridgestone Tire Company Limited: *See*—
Abe, Masaru, 4,340,105, Cl. 152-354.00R.

Brindak, Nicholas J.: *See*—
Knudsen, James G.; and Brindak, Nicholas J., 4,339,945, Cl. 73-61.200.

Bristol-Myers Company: *See*—
Gottstein, William J., 4,340,539, Cl. 260-245.20R.

Bristow, Ian T.; and Petts, Nigel J., to Hobourn-Eaton Limited. Positive displacement pump systems. 4,340,337, Cl. 417-304.000.

British Petroleum Company Limited, The: *See*—
Aldred, Alan C. G.; and Weeks, Brian, 4,340,517, Cl. 524-59.000.

Broberg, Peter O. Tractor. 4,340,127, Cl. 180-327.000.

Brock, Rita. Hanging device or catch. 4,340,199, Cl. 248-544.000.

Brodeur, Rene H.; Terlecky, Boris S.; Sellberg, Ronald P.; and Halliar, William R. Articulated railway car. 4,339,996, Cl. 105-3.000.

Brois, Stanley J.; and Ver Strate, Gary, to Exxon Research & Engineering Co. Crosslinking and chemical modification agents for olefin containing polymers. 4,340,694, Cl. 525-342.000.

Bronstein-Bonte, Irena Y.; and Lindholm, Edward P., to Polaroid Corporation. Process for preparing cationic polymers. 4,340,522, Cl. 524-766.000.

Brooks, Mark A.; and Miler, Jane, to Bendix Corporation, The. Method of fabricating a pressure sensor. 4,340,409, Cl. 65-43.000.

Brooks, Samuel C., to Wayne State University. Compositions inhibiting estrogen sulfotransferase activity. 4,340,602, Cl. 424-238.000.

Brown, Edgar D., Jr., to General Electric Company. Alkyl siloxane alkoxy siloxane copolymeric hydraulic fluids. 4,340,495, Cl. 252-78.300.

Brown, Edgar D., Jr., to General Electric Company. Addition cure coating with improved adhesion. 4,340,710, Cl. 528-15.000.

Brown, Glenn R.; and McMillan, James S., to Plastic Machinery Corporation. Vacuum system. 4,340,340, Cl. 425-71.000.

Brown, Richard K. Identification means for rolled-up articles, such as drawings and the like. 4,339,885, Cl. 40-309.000.

Brown & Williamson Tobacco Corporation: *See*—
Tudor, Thomas T., 4,340,074, Cl. 131-362.000.

Brugmans, Johannes T., to Koninklijke Emballage Industrie Van Leer B.V. Metallized labels. 4,340,638, Cl. 428-323.000.

Bruhn, Alfred; and Bernard, William, to Dravo Corporation. Waste heat recovery apparatus. 4,340,207, Cl. 266-155.000.

Brunner, Anton; and Jatsch, Werner, to Siemens Aktiengesellschaft. Doppler navigation antenna having automatic land-sea error correction. 4,340,892, Cl. 343-768.000.

Bucklew, Leonard E., to General Foods Corporation. Jar stabilizer for pick-up assembly. 4,340,249, Cl. 294-95.000.

Bulkai, Lajos: *See*—
Toth, Andras; Toth nee Palotai, Emese; Olah, Jozsef; Bitskey, Jozsef; and Bulkai, Lajos, 4,340,488, Cl. 210-705.000.

Bullman, Allan R., to Union Carbide Corporation. Water-resistant latex sealants. 4,340,524, Cl. 524-297.000.

Buonauro, Andrew; and Warner, Richard, to Cooper Industries, Inc. Broken bit detector. 4,340,326, Cl. 408-16.000.

Burch, Darrel W.; and Wojciehowski, James P., to Garrett Corporation, The. Pneumatic starter overtemperature control. 4,339,916, Cl. 60-39.020.

Burnett, L. Nelson, Jr., to Reading-Dorma Closer Corporation. Door closer with assist or door operating features. 4,339,843, Cl. 16-62.000.

Burris, James O., III. Reel for anchoring wild fowl decoys. 4,340,192, Cl. 242-107.600.

Bush, Harold G.: *See*—
United States of America, National Aeronautics and Space Administration; Bush, Harold G.; and Wallsom, Richard E., 4,340,318, Cl. 403-217.000.

Bychkov, Nikolai M.: *See*—
Grishin, Boris P.; Gruznov, Alexandr G.; Romanov, Leonid M.; Vishnyak, Julian I.; Shugaeva, Nina A.; Bychkov, Nikolai M.; Lipets, Konstantin V.; and Zotov, Alexandr I., 4,340,720, Cl. 528-232.000.

Bye, Ashley D., to Imperial Chemical Industries Limited. Transition metal composition. 4,340,502, Cl. 252-429.00B.

C. A. Weidmuller KG: *See*—
Wilmes, Manfred; and Marienfeld, Karl, 4,340,270, Cl. 339-95.00D.

C-I-L Inc.: *See*—
Pollock, David C. I.; and Wilson, Malcolm A., 4,340,484, Cl. 210-607.000.

C M Industries: *See*—
Voisin, Guy; Jansen, Franz; and Gros, Pierre, 4,340,535, Cl. 260-112.00B.

Cabeza, Maximino R. Simultaneous connection between handlebar and steering fork of bicycles. 4,340,238, Cl. 280-279.000.

Cabot Corporation: *See*—
Salyers, Edward F., 4,340,129, Cl. 181-200.000.

Caldicott, Laurence C.; Cameron, Alastair D.; and Felton, Georgs N., to Lucas Industries Limited. Governor mechanism. 4,340,020, Cl. 123-374.000.

Caldwell, Joseph M. Pulley for compound archery bow. 4,340,025, Cl. 124-86.000.

Calentine, John W.: *See*—
Sandri, Joseph M.; Calentine, John W.; Linder, Seymour M.; and Billioux, Yves J., 4,340,743, Cl. 548-318.000.

Calvert, Rodney K., to Mead Corporation, The. Article carrier erecting mechanism. 4,340,380, Cl. 493-316.000.

Cameron, Alastair D.: *See*—
Caldicott, Laurence C.; Cameron, Alastair D.; and Felton, Georgs N., 4,340,020, Cl. 123-374.000.

Cameron, Anson W. Caddy for garment hangers. 4,340,145, Cl. 211-124.000.

Camilleri, Thomas M. Pin guide arm. 4,340,221, Cl. 273-43.00E.

Cammarata, Joseph G. Random selection word game. 4,340,231, Cl. 273-243.000.

Campanile, Armando; Carlomagno, Giovanni M.; De Vita, Angelo; Donsi, Giorgio; Massimilla, Leopoldo; and Scognamiglio, Agostino, to Centro Ricerche Fiat S.p.A.; and Universita' Degli Studi di Napoli. Fluidized bed filtering and/or heat exchange apparatus particularly for gaseous discharges from internal combustion engines and industrial plants. 4,340,400, Cl. 55-269.000.

Campbell, George S., to United States of America, Air Force. Decoy missile. 4,340,197, Cl. 244-3.100.

Campi, James G. Defect-free photomask. 4,340,654, Cl. 430-5.000.

CAN-ENG Holdings Limited: *See*—
Harding, Brian, 4,340,433, Cl. 148-16.000.

Canada, Atomic Energy of, Limited: *See*—
Capel, Antony C.; Yan, George; Gilks, George E.; and West, Rodney J., 4,340,961, Cl. 370-84.000.

Canadian Patents & Dev. Ltd.: *See*—
Willis, Clive; and McKee, Terrence J., 4,340,968, Cl. 372-60.000.

Canale, Albert S.: *See*—
Canale, Ralph D.; Canale, Albert S.; and Papazian, Harry, 4,340,509, Cl. 252-529.000.

Canale, Michael A.: *See*—
Canale, Ralph D.; Canale, Albert S.; and Papazian, Harry (said Harry Papazian assors. to), 4,340,509, Cl. 252-529.000.

Canale, Ralph D.; Canale, Albert S.; and Papazian, Harry, to Canale, Michael A., by said Harry Papazian. Composition, concentrate and fountain solution for lithographic printing operations. 4,340,509, Cl. 252-529.000.

Canon Kabushiki Kaisha: *See*—
Hanagata, Takayoshi; and Noda, Atsushi, 4,340,848, Cl. 318-561.000.
Ikemori, Keiji, 4,340,279, Cl. 350-422.000.
Isobe, Takashi, 4,340,280, Cl. 350-429.000.
Kiuchi, Masashi; Takasu, Yoshio; Fukumoto, Hiroshi; Hino, Takashi; Uchiyama, Masaki; and Mitsuhashi, Yasuo, 4,340,660, Cl. 430-106.600.
Ohara, Katsunobu; Tanaka, Keiji; Ando, Yujiro; and Moriyama, Inao, 4,340,296, Cl. 355-35.00C.
Yamamoto, Hiroshi, 4,340,287, Cl. 354-128.000.

Capel, Antony C.; Yan, George; Gilks, George E.; and West, Rodney J., to Canada, Atomic Energy of, Limited. Distributed multi-port communications system. 4,340,961, Cl. 370-84.000.

Cardell, Max L., to Fiber Industries, Inc. Apparatus for guiding filaments. 4,340,341, Cl. 425-72.00S.

Carissimi, Sam. Light assembly for archers arrow. 4,340,930, Cl. 362-204.000.

Carleton Controls Corporation: *See*—
Cummins, Richard D., 4,340,083, Cl. 137-499.000.

Carlingswitch, Inc.: *See*—
Sorenson, Richard W., 4,340,791, Cl. 200-302.000.

Carlomagno, Giovanni M.: *See*—
Campanile, Armando; Carlomagno, Giovanni M.; De Vita, Angelo; Donsi, Giorgio; Massimilla, Leopoldo; and Scognamiglio, Agostino, 4,340,400, Cl. 55-269.000.

Carlson, Gerald E.: *See*—
Raskin, Jerome S.; Hall, Warren L.; Holt, Charles P.; and Carlson, Gerald E., 4,340,807, Cl. 219-497.000.

Carneborn, Leif R.: *See*—
Nilsson, Soren G.; and Carneborn, Leif R., 4,340,774, Cl. 174-138.00G.

Carr, David L., to Eastman Kodak Company. Photographic film unit. 4,340,286, Cl. 354-105.000.

Carrier Corporation: *See*—
Wright, William E.; and Honnold, Fred V., Jr., 4,340,115, Cl. 165-122.000.

Carrieri, Louis F., to Gulf & Western Manufacturing Company. Shock dampening system for presses. 4,339,975, Cl. 83-617.000.

Carter, James C., Jr.; and Mansfield, Stanley, to Varian Associates, Inc. Touch detector for electron applicator. 4,340,825, Cl. 307-116.000.

Cartier, James E., to Saco Tanning Division of Kirstein Leather Co. Process for chrome recovery from industrial waste and the like, as from chrome-ladened tannery waste. 4,340,571, Cl. 423-53.000.

Cary, Larry R. Apparatus for repairing hot spots in a refractory lined wall. 4,340,349, Cl. 425-290.000.

Cashio, R. Kent. Concrete pipe handling apparatus. 4,340,333, Cl. 414-607.000.

Cassidy, Stephen: *See*—
Srinivasan, Venkataraman; Cassidy, Stephen; and Grassie, Charles, 4,340,449, Cl. 204-15.000.

Casu, Benito: *See*—
Colombo, Virginio; Nicoletti, Alberto; and Casu, Benito, 4,340,731, Cl. 536-87.000.

Caterpillar Tractor Co.: *See*—
Grillot, John W.; and Young, Teddy R., 4,339,961, Cl. 74-110.000.
Horton, Edward R.; and Hughes, John L., 4,339,866, Cl. 29-523.000.
Larson, Donald J., 4,340,126, Cl. 180-305.000.
Moss, Robert E., 4,340,320, Cl. 404-122.000.

Shatters, Dale R., 4,339,844, Cl. 16-82.000.
Catino, Esther E., executor: *See*—
Rodriguez, Silvio A.; and Catino, Sigmund C., deceased, 4,340,385, Cl. 8-527.000.
Catino, Sigmund C., deceased: *See*—
Rodriguez, Silvio A.; and Catino, Sigmund C., deceased, 4,340,385, Cl. 8-527.000.
Catron, George W., to Philipanko, Walt R. Disposable air filter. 4,340,402, Cl. 55-487.000.
Cava, Frank P. Pendant control protector. 4,340,792, Cl. 200-304.000.
Cavalucci, Ralph: *See*—
Ulbricht, Roger; and Cavalucci, Ralph, 4,339,892, Cl. 49-192.000.
Cave, Ellis K., to TBS International, Inc. Tri-level digital recording. 4,340,913, Cl. 360-40.000.
Cavitt, Michael B.: *See*—
Davis, Rhetta Q.; and Cavitt, Michael B., 4,340,713, Cl. 528-89.000.
Celia, James A., to General Electric Company. Method for making keto acids and dione cyclics obtained therefrom. 4,340,753, Cl. 562-528.000.
Centro Ricerche Fiat S.p.A.: *See*—
Campanile, Armando; Carlomagno, Giovanni M.; De Vita, Angelo; Donsi, Giorgio; Massimilla, Leopoldo; and Scognamiglio, Agostino, 4,340,400, Cl. 55-269.000.
Cerna, Juan F., to J.F.C. Investments, Inc. Suitcase and cart assembly. 4,340,132, Cl. 190-18.00A.
Ceskoslovenska akademie ved: *See*—
Lukas, Jaromir; Kalal, Jaroslav; and Svec, Frantisek, 4,340,483, Cl. 210-502.000.
CGR Ultrasonic: *See*—
Dory, Jacques, 4,340,944, Cl. 367-96.000.
Challenge-Cook Bros., Incorporated: *See*—
Prichard, Evan S., 4,340,309, Cl. 366-62.000.
Chalupsky, Clayton W.; and Clemen, David A., to Ex-Cell-O Corporation. Fuel flow means for portable space heaters. 4,340,362, Cl. 432-222.000.
Champion International Corporation: *See*—
Cottrell, Edward D., 4,340,151, Cl. 221-93.000.
Hart, John R.; Juergens, Stanley G.; and McCormack, William E., 4,340,442, Cl. 162-146.000.
Montealegre, James, 4,340,170, Cl. 229-52.00B.
Webinger, George, 4,340,168, Cl. 229-23.0BT.
Webinger, George P., 4,340,169, Cl. 229-31.00R.
Champion Road Machinery Limited: *See*—
MacDonald, Jack G., 4,340,119, Cl. 172-789.000.
Champlain Cable Corporation: *See*—
Perreault, Aime J., 4,340,773, Cl. 174-107.000.
Chance, Ronald R.: *See*—
Yee, Kwok C.; Preziosi, Anthony F.; Patel, Gordhanbhai N.; Chance, Ronald R.; Miller, Granville G.; and Baughman, Ray H., 4,339,951, Cl. 374-162.000.
Chandley, George D.; and Sharkey, Richard L., to Hitchiner Manufacturing Co., Inc. Method of casting metal in sand mold using reduced pressure. 4,340,108, Cl. 164-63.000.
Chang, Wei K.: *See*—
Gold, Elijah H.; Berger, Joel G.; and Chang, Wei K., 4,340,597, Cl. 424-256.000.
Chard, Brian C.: *See*—
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Chavis, Leon A.; and Moseley, Gordon P., to Super Shops, Inc. Gas detector. 4,340,885, Cl. 340-632.000.
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Chemetron Corporation: *See*—
Banks, Kenneth E., 4,340,805, Cl. 219-146.230.
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Reuter, Franz G.; and Hilterhaus, Karl-Heinz, 4,340,681, Cl. 521-123.000.
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Hubner, Wolfgang; Schroers, Otto; and Sladeck, Hans J., 4,340,525, Cl. 252-8.55B.
Chemische Werke Huls AG: *See*—
List, Ferdinand; and Orlowski, Friedrich-August, 4,340,752, Cl. 562-485.000.
Cheney, Marvin C., to United Technologies Corporation. Helicopter tail rotor with pitch control mechanism. 4,340,335, Cl. 416-138.000.
Chevron Research Company: *See*—
Demaison, Gerard J.; and Kaplan, Isaac R., 4,340,391, Cl. 23-230.0EP.
Lapporte, Seymour J.; and Marquis, David M., 4,340,758, Cl. 564-409.000.
Miller, Stephen J.; and Bishop, Keith C., III, 4,340,465, Cl. 208-120.000.
Suzuki, Shigeto, 4,340,757, Cl. 564-407.000.
Chiappetti, Pietro. Adjustable vee block clamp. 4,340,211, Cl. 269-110.000.
Chichkin, Valentin P.; Shpigel, Efraim A.; Gokin, Gennady P.; Matjuschenko, Georgy E.; Kurakov, Nikolai N.; Rabinovich, Grigory B.; Samoilovsky, Sergei A.; Angel, Boris S.; Ilienko, Vladimir S.; Miterev, Vladimir P.; Zemlyanov, Leonid S.; and Krutkov, Anatoly F. Vegetable harvesting machine. 4,339,906, Cl. 56-327.00R.
Chiles, David T. Automatic emergency activated railway brakes. 4,339,997, Cl. 105-216.000.
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Moteki, Tsutomu; Yamaguchi, Kunihiro; and Nakajima, Yoshikazu, 4,340,513, Cl. 524-13.000.
Sugimori, Shigeru, 4,340,498, Cl. 252-299.500.
Chiyoda Chemical Engineering & Construction Co., Ltd.: *See*—
Inooka, Masayoshi, 4,340,466, Cl. 208-210.000.
Chloe Chimie: *See*—
Arnal, Claude; Pompon, Jean-Barnard; and Roullet, Robert, 4,340,722, Cl. 528-480.000.
Chou, Billy J., to William H. Rorer, Inc. Amidinourea derivative veterinary compositions for suppression of parasitemia. 4,340,609, Cl. 424-322.000.
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Chugai Seiyaku Kabushiki Kaisha: *See*—
Aoki, Tadao; Miyakoshi, Hideo; Hirasawa, Yoshihei; and Nishii, Yasuo, 4,340,604, Cl. 424-236.000.
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Churchward, Roy A. Weighted golf iron. 4,340,230, Cl. 273-171.000.
Chute, Challoner R. Coating and/or adhesive composition and method for preparation thereof. 4,340,440, Cl. 156-330.900.
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Beffa, Fabio, 4,340,536, Cl. 260-145.00A.
Evans, David G.; Zurbuchen, Jacques; and Leutenegger, Willi, 4,340,387, Cl. 8-580.000.
Laanio, Verena; Fory, Werner; and Schurter, Rolf, 4,340,415, Cl. 71-76.000.
Laanio, Verena; Fory, Werner; and Schurter, Rolf, 4,340,747, Cl. 560-102.000.
Rody, Jean, 4,340,533, Cl. 524-99.000.
Roueche, Armand, 4,340,430, Cl. 106-176.000.
Ciencewicki, Evelyn, to Personal Products Company. Production of fibrous sliver having particulate matter distributed therethrough. 4,340,556, Cl. 264-119.000.
Cimochowski, Anthony E.; and Heffelmire, Brad A., to Manville Service Corporation. Multiple layer thermal insulation device. 4,339,902, Cl. 52-506.000.
CISE Centro Informazioni Studi Esperienze S.p.A.: *See*—
Bastida, Ezio M., 4,340,873, Cl. 333-161.000.
Citizen Watch Company Limited: *See*—
Kanno, Fumio; and Nakajima, Fumio, 4,340,946, Cl. 368-76.000.
Citkowski, Ronald W.: *See*—
Ovshinsky, Stanford R.; Hines, Leon F.; Citkowski, Ronald W.; and Yu, Terry T., 4,340,662, Cl. 430-270.000.
Clark, Donald Y. Control mechanism for a grain bin stirring apparatus. 4,340,310, Cl. 366-261.000.
Clark, Richard E.: *See*—
Skelton, John; Clark, Richard E.; and Davis, Robert B., 4,340,091, Cl. 139-383.00R.
Clarke, George A. Receptacle attachment for cameras. 4,340,285, Cl. 354-75.000.
Clary, Thomas R., to Hudson Oxygen Therapy Sales Company. Aspirator. 4,340,336, Cl. 417-189.000.
Clayborne, William J.: *See*—
Hauser, Hans; and Clayborne, William J., 4,339,965, Cl. 74-607.000.
Clayton, Colin G.; and Wormald, Malcolm R., to United Kingdom Atomic Energy Authority. Analysis of gold-containing materials. 4,340,443, Cl. 376-342.000.
Clemen, David A.: *See*—
Chalupsky, Clayton W.; and Clemen, David A., 4,340,362, Cl. 432-222.000.
Clingman, Wilbur D.: *See*—
Robinson, Curtiss W.; and Clingman, Wilbur D., 4,340,271, Cl. 350-16.000.
Close, Pierre, to Societe Alsacienne de Constructions Mecaniques de Mulhouse. Device for gripping yarn supports on revolving-spindle textile machines. 4,339,912, Cl. 57-275.000.
Cohen, Allen L. Phase shift multifocal zone plate. 4,340,283, Cl. 351-161.000.
Cohen, Haim A.: *See*—
Bekierkunst, Adam; and Cohen, Haim A., 4,340,586, Cl. 424-92.000.
Cole, Thomas F., to Hughes Tool Company. Hydraulic depth indicator for hydraulic drilling machines. 4,339,946, Cl. 73-151.000.
Coleman, Larry M., to Union Carbide Corporation. Process for the production of ultrahigh purity silane with recycle from separation columns. 4,340,574, Cl. 423-347.000.
Colgate-Palmolive Company: *See*—
Hendrickson, Thomas C., 4,340,558, Cl. 264-151.000.

Colling, J.: *See*—
Vayssiere, Pierre; Roederer, Charles; Grosjean, Jean-Claude; Grave, Roland; Schleimer, F.; Goedert, F.; Henrion, R.; Lorang, L.; and Colling, J., 4,340,208, Cl. 266-220.000.

Collins, Richard A.; Tersteeg, Glenn E.; and Jessop, Thomas C., to Eastman Kodak Company. Method and apparatus for metering biological fluids. 4,340,390, Cl. 23-230.00B.

Colombo, Virginio; Nicoletti, Alberto; and Casu, Benito, to Montedison S.p.A. Polycarboxyalkyl-cellulose having high fluid absorbing and retaining properties, and process for preparing same. 4,340,731, Cl. 536-87.000.

Combustion Engineering, Inc.: *See*—
Rosso, John B., 4,340,938, Cl. 364-510.000.

Commercial Resins Company: *See*—
Hart, Robert J., 4,340,010, Cl. 118-306.000.

Compagnie Generale des Etablissements Michelin: *See*—
Freppel, Christian, 4,340,703, Cl. 526-79.000.
Lefrancois, Jean, 4,340,080, Cl. 137-223.000.

Compair Maxam Limited: *See*—
Manley, Roger E. W., 4,340,045, Cl. 128-204.240.

Congoleum Corporation: *See*—
Ehrenfeld, Frank E., Jr., 4,340,381, Cl. 8-114.500.

Conoco Inc.: *See*—
Stalder, John L., 4,340,245, Cl. 285-53.000.

Conrady, James A.; and Driscoll, William J., to B. F. Goodrich Company, The. Polyvinyl chloride substrates coated with single package water-based compositions. 4,340,648, Cl. 428-518.000.

Conwed Corporation: *See*—
Swanson, Clare E., 4,340,486, Cl. 210-693.000.

Cook, John G., to Solartron Electronic Group Limited, The. Analogue-to-digital converters. 4,340,883, Cl. 340-347.0NT.

Cooke, Billy O.; and Nield, Philip N., to Eddystone Radio Limited. Local oscillator frequency drift compensation circuit. 4,340,974, Cl. 455-258.000.

Cool Curtain, Inc.: *See*—
Van Horn, William E., II, 4,340,106, Cl. 160-332.000.

Cooper Industries, Inc.: *See*—
Buonauro, Andrew; and Warner, Richard, 4,340,326, Cl. 408-16.000.

Coors Porcelain Company: *See*—
Langman, Richard A.; Giovanini, Donald R.; and Letzig, Michael P., 4,340,635, Cl. 428-164.000.

Copolymer Rubber & Chemical Corporation: *See*—
Joffrion, Ralph K., 4,340,689, Cl. 525-263.000.

Coppin, William P.: *See*—
Belknap, James L.; and Coppin, William P., 4,340,180, Cl. 239-422.000.

Cordier, Georges, to Rhone-Poulenc Agrochimie. Process for the preparation of anilines substituted by chlorine in the meta-position. 4,340,759, Cl. 564-412.000.

Cornie, James A.: *See*—
DeBolt, Harold E.; Suplinskas, Raymond J.; Cornie, James A.; Henze, Thomas W.; and Hauze, Albert W., 4,340,636, Cl. 428-215.000.

Cottrell, Edward D., to Champion International Corporation. Stick feeding apparatus. 4,340,151, Cl. 221-93.000.

Courty, Philippe; Rabinovich, Georgy L.; Mojaiko, Victor N.; and Le Page, Jean-Francois, to Institut Francais du Petroie. Catalyst for a process for dealkylating aromatic hydrocarbons in the presence of steam. 4,340,504, Cl. 252-465.000.

Cousins, Morison S., to Heller Designs, Inc. Article support arrangement. 4,340,144, Cl. 211-87.000.

Covington Brothers Technologies: *See*—
Artzer, Richard F., 4,340,802, Cl. 219-56.000.

Cowans, Kenneth W.; and Bennett, M. Owen, to Bennett Sound Corporation. Speaker distortion compensator. 4,340,778, Cl. 179-1.00D.

Cox, Everard F. Static tracheostomy tube. 4,340,046, Cl. 128-207.170.

Coyle, Peter J., to RCA Corporation. Method for interconnecting solar cells. 4,340,803, Cl. 219-56.220.

Crandal, Edwin L., to Zebron Corporation. Interfacial surface generator mixer. 4,340,311, Cl. 366-336.000.

Crasnianski, Serge; and Soriano, Louis, to KIS France. Machine for stamping license plates. 4,339,994, Cl. 101-4.000.

Crawford, Lynn A. Heat recovery in distillation process. 4,340,446, Cl. 203-19.000.

Crawford, Ronald H.; and Kent, Alan W. Pressure regulating device with damping means for preventing valve chatter. 4,340,085, Cl. 137-514.000.

Creager, John E., to General Motors Corporation. Fuel supply and return system with bypass valve and water pumpout. 4,340,023, Cl. 123-510.000.

Cretin, Bertrand; and Godefroy, Andre, to L'Oreal. Process for the manufacture of a holder for a deodorizing and disinfecting product for toilet pans. 4,340,561, Cl. 264-297.000.

Cristofori, Manlio: *See*—
Borzatta, Valerio; Cristofori, Manlio; and Brazzi, Angelo, 4,340,585, Cl. 424-79.000.

Crocket, Danial E. Ski. 4,340,241, Cl. 280-609.000.

Crout, Richard J.: *See*—
Gilbertson, John R.; and Crout, Richard J., 4,340,628, Cl. 424-49.000.

Cruz-Uribe, Antonio S.; and Check, Frank T., Jr., to Pitney Bowes Inc. Impulse ink jet ink delivery apparatus. 4,340,896, Cl. 346-140.00R.

Culley, Bobby G., to Texas Instruments Incorporated. Electronic learning aid. 4,340,374, Cl. 434-201.000.

Cummins, Richard D., to Carleton Controls Corporation. Deflectable beam valve. 4,340,083, Cl. 137-499.000.

Cunnion, James P., Jr.: *See*—
Netting, David I.; Spivack, Bruce D.; and Cunnion, James P., Jr., 4,340,642, Cl. 428-402.000.

Cuschera, Casper. Flush mounted pop up drain fitting. 4,339,832, Cl. 4-287.000.

D. Swarovski & Co.: *See*—
Schwab, Kurt, 4,340,301, Cl. 350-106.000.

Dahn, Rolf: *See*—
Freiherr von Arnim, Dietlof; and Dahn, Rolf, 4,340,089, Cl. 138-121.000.

Daido Tokushuko Kabushiki Kaisha: *See*—
Katoh, Koshi; and Shimizu, Takayoshi, 4,340,424, Cl. 75-126.00E.

Dale, John D.; and Knotter, David G. Material transferring apparatus. 4,340,095, Cl. 141-1.000.

Dammann, Peter; Schippers, Heinz; and Bauer, Karl, to Barmag Barmer Maschinenfabrik. Apparatus for false twisting yarn. 4,339,915, Cl. 57-339.000.

Dammert, Wolfgang; Enge, Horst; and Dufour, Jacques. Magnetic armature mounting in particular for minicompact relays. 4,340,876, Cl. 335-276.000.

D'Andrade, Bruce M.; Tsui, Kwok W.; and Yuen, Sing C. J., to Arco Industries Ltd. Spelling machine. 4,340,373, Cl. 434-174.000.

Danek, Ladislav; and Spector, George. Mechanical straw pencil. 4,340,175, Cl. 239-33.000.

Danhauser, Justus: *See*—
Stemme, Otto; Staudacher, Frank; Lermann, Peter; Danhauser, Justus; Engelsmann, Dieter; and Wagner, Karl, 4,340,288, Cl. 354-171.000.

Daniel Industries, Inc.: *See*—
Geisow, Bernard H., 4,340,088, Cl. 137-629.000.

Dark, Robert O.: *See*—
Jack, Stanton E.; and Dark, Robert O., 4,340,273, Cl. 350-105.000.

Darner, James C., to Becton, Dickinson & Company. Self-sealing closure dispenser for plastic stain bottles. 4,340,157, Cl. 222-211.000.

Daryl Laboratories, Inc.: *See*—
Harte, Richard A.; and Bart, Max, 4,340,564, Cl. 422-56.000.

Datamarc, Inc.: *See*—
Berger, Michael A., 4,340,314, Cl. 400-625.000.

Davidson, Peter J., to Imperial Chemical Industries Limited. Fluid flow. 4,340,501, Cl. 252-373.000.

Davidson, Walter C.; and Porcelli, Richard V., to Halcon SD Group, Inc., The. Treatment of carbonylation residues. 4,340,569, Cl. 423-22.000.

Davidson, Walter C., to Halcon SD Group, Inc., The. Recovery of rhodium from carbonylation residues. 4,340,570, Cl. 423-22.000.

Davies, Ernest L. Boat centering device. 4,340,332, Cl. 414-467.000.

Davis, Alton A. Shaving system and method. 4,339,876, Cl. 30-90.000.

Davis, George S.: *See*—
Chisholm, William M.; Davis, George S.; and Dougherty, James C., 4,340,093, Cl. 140-147.000.

Davis, Jesse B. Roll leaf coating method. 4,340,438, Cl. 156-234.000.

Davis, Rhetta Q.; and Cavitt, Michael B., to Dow Chemical Company, The. Method for preparing high molecular weight epoxy resins containing hydrolyzed epoxy groups. 4,340,713, Cl. 528-89.000.

Davis, Robert B.: *See*—
Skelton, John; Clark, Richard E.; and Davis, Robert B., 4,340,091, Cl. 139-383.00R.

Dawson, Patricia A.: *See*—
Smith, Bryan; Keech, Andrew E.; and Dawson, Patricia A., 4,340,079, Cl. 137-207.000.

De Forenede Bryggerier A/S: *See*—
Johansen, Jack T., 4,340,675, Cl. 435-189.000.

de la Burde, Roger Z.; and Aument, Patrick E., to Philip Morris, Incorporated. Expanding tobacco. 4,340,073, Cl. 131-291.000.

de la Burde, Roger Z.; Mait, Russell B.; and Utsch, Francis V., to Philip Morris Incorporated. Tobacco recovery from stemmery discards. 4,340,142, Cl. 209-11.000.

Deadman, Harry A.: *See*—
Ball, Geoffrey; Deadman, Harry A.; Smith, John G.; and Vokes, John C., 4,339,870, Cl. 29-576.00B.

DeBolt, Harold E.; Suplinskas, Raymond J.; Cornie, James A.; Henze, Thomas W.; and Hauze, Albert W., to Avco Corporation. Coated stoichiometric silicon carbide. 4,340,636, Cl. 428-215.000.

Decker, Quintin W.: *See*—
Morlino, Robert J.; Decker, Quintin W.; and Marcus, Erich, 4,340,382, Cl. 8-137.000.

DeCosta, John; Mallos, James B.; and Roe, David B., to Bell Telephone Laboratories, Incorporated. Dynamic position locating system. 4,340,777, Cl. 178-18.000.

Deemer, Milton G. Endodontic test file. 4,340,364, Cl. 433-75.000.

Deere & Company: *See*—
Stephenson, Dwight B.; and Koehler, David L., 4,339,987, Cl. 91-426.000.

DeHydro Corporation, The: *See*—
Stannard, Forrest B.; and Highstreet, Edward J., 4,340,478, Cl. 210-286.000.

De Jongh, Rudolph O/; Visser, Adrianus; and Van der Linde, Robert, to Internationale Octrooi Maatschappij "Octropa" B.V. Powder coating. 4,340,698, Cl. 525-438.000.

Delaney, Robert R.: *See*—
Pate, Daniel R.; Delaney, Robert R.; and Shuleva, John J., 4,340,547, Cl. 260-428.500.

Delaporte, Francois X.; Lebesnerais, Gerard M.; and Pantani, Jean-Pierre, to International Business Machines Corp. Interface circuit in

conformity with EIA standards and implemented with an operational amplifier-like circuit. 4,340,922, Cl. 361-91.000.

Deleuil, Michel, to Rhone-Poulenc Industries. Pressure compacting of settable plaster compositions. 4,340,521, Cl. 524-2.000.

Delmed Inc.: *See*—
Noiles, Douglas G., 4,340,050, Cl. 128-214.00C.

Deltrol Corp.: *See*—
Donner, Verne P., 4,340,203, Cl. 251-322.000.

DeLuca, Raymond F., to Georgia-Pacific Corporation. Dispenser for rolled flexible sheet material. 4,340,195, Cl. 242-55.300.

Demaison, Gerard J.; and Kaplan, Isaac R., to Chevron Research Company. Predicting hydrocarbon potential of an earth formation underlying a body of water by analysis of seeps containing low concentrations of methane. 4,340,391, Cl. 23-230.0EP.

Demiere, Armand, to Arcomac S.A. Web-spreading roller. 4,339,855, Cl. 26-103.000.

Denki Kagaku Kogyo Kabushiki Kaisha: *See*—
Sugawara, Kohichi; Matsui, Isamu; Ishimaru, Naoki; and Ikegami, Teruhiro, 4,340,577, Cl. 423-450.000.

Dennehey, T. Michael; Greff, Richard J.; and Wolf, Ludwig, Jr., to Baxter Travenol Laboratories, Inc. Connection site protector. 4,340,052, Cl. 128-247.000.

Dennis, James T.; and Kolomayets, George, to Dennis, James T. Automatic record changer. 4,340,958, Cl. 369-267.000.

Dennis, Mahlon D.; and Skinner, Frank R., to General Electric Company. Abrasive compact dressing tools, tool fabrication methods for dressing a grinding wheel with such tools. 4,339,896, Cl. 51-298.000.

deNora, Oronzio, to Oronzio deNora Elettrochimici S.p.A. Novel electrolysis cell. 4,340,452, Cl. 204-129.000.

den Toonder, Pieter; Seltenrijch, Johannes C.; Stubbs, Graham S.; Fondse, Pieter J.; and Jirka, Howard F., to Oak Industries Inc. Video signal coding by video signal polarity reversal on the basis of brightness level comparison. 4,340,906, Cl. 358-124.000.

Deppner-Hiemesch, Harald: *See*—
Hemm, Ansgar; and Deppner-Hiemesch, Harald, 4,340,086, Cl. 137-554.000.

Derendorf, Walter; and Huber, Manfred, to BASF Aktiengesellschaft. Winding hub for materials in strip form. 4,340,188, Cl. 242-68.500.

Deutsch, Thomas F.; Ehrlich, Daniel J.; and Osgood, Richard M., to Massachusetts Institute of Technology. Method and apparatus for depositing a material on a surface. 4,340,617, Cl. 427-53.100.

Deutsche Angelgerate Manufaktur (DAM) Hellmuth Kuntze Gesellschaft & Co. KG: *See*—
Volkert, Bernd; and Dorbandt, Klaus, 4,340,189, Cl. 242-84.10R.

Deutsche Gesellschaft fur Wiederaufarbeitung: *See*—
van Geel, Jacobus N. C.; Dobbels, Frans M.; and Theunissen, Walther A. H., 4,340,160, Cl. 222-595.000.

Deutsche Gold- und Silber-Scheideanstalt vormals Roessler: *See*—
Junkermann, Helmut; and Kruger, Horst, 4,340,490, Cl. 210-759.000.

Deutsche Texaco Aktiengesellschaft: *See*—
Brandes, Gunter; Neier, Wilhelm; Wollner, Johannes; Webers, Werner; and deVleesschauwer, Walter F., 4,340,769, Cl. 568-899.000.

De Vita, Angelo: *See*—
Campanile, Armando; Carlomagno, Giovanni M.; De Vita, Angelo; Donsi, Giorgio; Massimilla, Leopoldo; and Scognamiglio, Agostino, 4,340,400, Cl. 55-269.000.

deVleesschauwer, Walter F.: *See*—
Brandes, Gunter; Neier, Wilhelm; Wollner, Johannes; Webers, Werner; and deVleesschauwer, Walter F., 4,340,769, Cl. 568-899.000.

De Vries, Marinus J.: *See*—
Kik, Leendert A.; Schuurink, Pieter H. J.; and De Vries, Marinus J., 4,340,622, Cl. 427-299.000.

De Winter, Walter F.: *See*—
Monbaliu, Marcel J.; De Winter, Walter F.; and Van Poucke, Raphael K., 4,340,664, Cl. 430-449.000.

Dhein, Rolf: *See*—
Rossert, Michael; and Dhein, Rolf, 4,340,688, Cl. 525-256.000.

Diamond, Allen M.; and Ratz, Richard D., to Beckman Instruments, Inc. Bichromatic spectrophotometer with wavelength reversal. 4,340,307, Cl. 356-418.000.

Dias, Francis F., II, to National Semiconductor Corporation. Pushbutton data entry and display system. 4,340,887, Cl. 340-711.000.

DiCiaccio, James J.; and Foley, John J., Jr., to Dynamics Research Corporation. Electro-optical position transducer. 4,340,814, Cl. 250-231.0SE.

Dickey-john Corporation: *See*—
Boldt, Robert R.; and Nelson, Arthur R., 4,340,886, Cl. 340-682.000.

Dickey, Leland C.; and Tayter, Maya, to InterNorth, Inc. Organic solid substrate dewatering process utilizing primary and secondary solvents. 4,339,882, Cl. 34-9.000.

Dickinson, Lawrence C. Integrated cylinder finishing system. 4,339,857, Cl. 29-26.00A.

Diesel Kiki Company, Ltd.: *See*—
Sutoh, Shinji; Sumikawa, Seiji; and Hara, Toshizo, 4,340,112, Cl. 165-16.000.

Dischert, Robert A.: *See*—
Williams, James J., Jr.; and Dischert, Robert A., 4,340,940, Cl. 364-745.000.

Discovision Associates: *See*—
Elliott, James E., 4,340,955, Cl. 369-213.000.
Mayer, Bruno F. P., 4,340,353, Cl. 425-548.000.

Dittrich, Erich: *See*—
Strugala, Alfred; Dittrich, Erich; and Siewert, Helmut, 4,339,937, Cl. 72-110.000.

Dixon, Richard W.; and Schwartz, Bertram, to Bell Telephone Laboratories, Incorporated. Semiconductor lasers with stable higher-order modes parallel to the junction plane. 4,340,967, Cl. 372-46.000.

Dobbels, Frans M.: *See*—
van Geel, Jacobus N. C.; Dobbels, Frans M.; and Theunissen, Walther A. H., 4,340,160, Cl. 222-595.000.

Dockner, Toni; Kempe, Uwe; Krug, Herbert; Magnussen, Peter; and Praetorius, Werner, to BASF Aktiengesellschaft. Preparation of 2-imidazolines. 4,340,745, Cl. 548-347.000.

Dockner, Toni: *See*—
Schwarz, Helmut; Dockner, Toni; Kempe, Uwe; Krug, Herbert; Praetorius, Werner; Magnussen, Peter; Gallei, Ewald; and Fehr, Erich, 4,340,744, Cl. 548-346.000.

Dolan, Calvin M., to Johnson Matthey, Inc. Reducing precious metal use in catalyst substrates. 4,340,505, Cl. 252-466.0PT.

Donner, Verne P., to Deltrol Corp. Three way slide valve with center return. 4,340,203, Cl. 251-322.000.

Donohoo, Dan J. Time logging apparatus. 4,340,808, Cl. 235-92.0AC.

Donsi, Giorgio: *See*—
Campanile, Armando; Carlomagno, Giovanni M.; De Vita, Angelo; Donsi, Giorgio; Massimilla, Leopoldo; and Scognamiglio, Agostino, 4,340,400, Cl. 55-269.000.

Doorakian, George A.; and Smith, Wanda S., to Dow Chemical Company, The. Preparation of phosphonium phenoxide salts. 4,340,761, Cl. 568-11.000.

Dopkowski, William J., to B.P.A. Enterprises, Inc. Golf club set and carrying case. 4,340,227, Cl. 273-77.00R.

Dorbandt, Klaus: *See*—
Volkert, Bernd; and Dorbandt, Klaus, 4,340,189, Cl. 242-84.10R.

Dorombozi, Laszlo: *See*—
Barsi, Karoly; Dorombozi, Laszlo; Forisek, Istvan; Kuburczik, Gyula; and Stuber, Gyorgy, 4,340,254, Cl. 299-11.000.

Dory, Jacques, to CGR Ultrasonic. Ultrasonic echographic probe having an acoustic lens and an echograph incorporating said probe. 4,340,944, Cl. 367-96.000.

Doshi, Kishore J.; and Patel, Kirit M., to Union Carbide Corporation. Pressure swing adsorption recovery. 4,340,398, Cl. 55-25.000.

Doty, Francis D. Low conductivity gas sealed building insulation. 4,340,630, Cl. 428-74.000.

Dougherty, James C.: *See*—
Chisholm, William M.; Davis, George S.; and Dougherty, James C., 4,340,093, Cl. 140-147.000.
Chisholm, William M.; and Dougherty, James C., 4,340,094, Cl. 140-147.000.

Dow Chemical Company, The: *See*—
Davis, Rhetta Q.; and Cavitt, Michael B., 4,340,713, Cl. 528-89.000.
Doorakian, George A.; and Smith, Wanda S., 4,340,761, Cl. 568-11.000.
McIntyre, James A.; Phillips, Robert F.; and Lefevre, Joseph D., 4,340,459, Cl. 204-258.000.

Dow Corning Corporation: *See*—
Gaul, John H., Jr., 4,340,619, Cl. 427-228.000.

Drake, Cyril F.; and Shreeve, Francesca M., to International Standard Electric Corporation. Titanoborate glass as cross-linking agent in polycarboxylic acid cements. 4,340,693, Cl. 525-337.000.

Draloric Electronic GmbH: *See*—
Fink, Rudolf, 4,340,898, Cl. 357-10.000.

Dravo Corporation: *See*—
Bruhn, Alfred; and Bernard, William, 4,340,207, Cl. 266-155.000.

Dresser Industries, Inc.: *See*—
Weise, Stanley A., 4,340,116, Cl. 166-215.000.

Drew Chemical Corporation: *See*—
Boylan, Francis J., 4,340,500, Cl. 252-321.000.
Knudsen, James G.; and Brindak, Nicholas J., 4,339,945, Cl. 73-61.200.

Driscoll, William J.: *See*—
Conrady, James A.; and Driscoll, William J., 4,340,648, Cl. 428-518.000.

D'Souza, Richard; and Kiss, Joseph, to Hoffmann-La Roche Inc. 5'-Deoxy-5-fluorouridine. 4,340,729, Cl. 536-23.000.

Dubach, Heinz: *See*—
Kuhlmann, Gerhard; Kranzler, Ernst; Baer, Gerhard; Ruetsch, Kurt; Ramseier, Hansruedi; Dubach, Heinz; Lang, Martin; Schwartz, Hans; and Aebi, Hans, 4,340,831, Cl. 310-239.000.

Dubetsky, Derry J.; Herron, Lester W.; and Master, Raj N., to International Business Machines Corporation. Process for flattening glass-ceramic substrates. 4,340,436, Cl. 156-89.000.

DuFaylite Developments Limited: *See*—
Thwaites, Peter J.; and Thornton, John N., 4,340,441, Cl. 156-512.000.

Dufour, Jacques: *See*—
Dammert, Wolfgang; Enge, Horst; and Dufour, Jacques, 4,340,876, Cl. 335-276.000.

Dunavant, John W. Amusement device. 4,340,220, Cl. 273-1.0GF.

Dunker, Rolf: *See*—
Mielsch, Gotz; Dunker, Rolf; and Thoma, Martin, 4,340,620, Cl. 427-292.000.

Dunlop Limited: *See*—
Haines, Robert C., 4,340,226, Cl. 273-73.00F.

Dunn, Billy W.: *See*—
McQueen, Wayne F.; Schansman, Raymond R.; Hurd, William A.; Fischer, Joerg; and Dunn, Billy W., 4,340,784, Cl. 179-6.120.

Du Pont de Nemours, E. I., and Company: *See*—
Fischer, Arthur, 4,340,141, Cl. 206-531.000.
Foss, Robert P., 4,340,686, Cl. 525-59.000.
Fugitt, Robert B.; and Luckenbaugh, Raymond W., 4,340,606, Cl. 424-272.000.
Hazan, Isidor, 4,340,523, Cl. 524-504.000.
Ho, Chungfah H., 4,340,550, Cl. 264-13.000.
Martin, Kenneth E., 4,340,527, Cl. 524-432.000.
Pechhold, Engelbert, 4,340,719, Cl. 528-230.000.
Sidwell, Lloyd G., 4,340,665, Cl. 430-539.000.
Vasta, Joseph A., 4,340,741, Cl. 548-237.000.
Yang, Hung H., 4,340,559, Cl. 264-181.000.

Durachenko, Mikhail I.: *See*—
Kucher, Valery N.; Popenko, Alexandr Z.; Reiman, Georgy R.; Durachenko, Mikhail I.; and Zhovtobrjukh, Grigory D., 4,340,445, Cl. 202-262.000.

Dutra, Gerard A., to Monsanto Company. N-Substituted triesters of N-phosphonomethylglycine. 4,340,416, Cl. 71-86.000.

Duyzings, Wilhelmus G.; van der Loos, Jozef L. M.; and Tijssen, Jan, to Stamicarbon, B.V. Process for the preparation of a copolymer of α-methylstyrene. 4,340,723, Cl. 528-497.000.

Dybas, Richard A.; Grier, Nathaniel; and Witzel, Bruce E., to Merck & Co., Inc. Polyamine compounds as antibacterial agents. 4,340,756, Cl. 564-367.000.

Dydyk, Michael, to Motorola, Inc. Efficient higher order mode resonant combiner. 4,340,870, Cl. 331-56.000.

Dynamics Research Corporation: *See*—
DiCiaccio, James J.; and Foley, John J., Jr., 4,340,814, Cl. 250-231.0SE.

E. D. Bullard Company: *See*—
Moretti, Anthony L.; and Ferris, Lester W., 4,339,926, Cl. 62-5.000.

E. R. Lattimer Limited: *See*—
Rowland, Roger G., 4,340,413, Cl. 65-375.000.

E-Systems, Inc.: *See*—
Alter, Larry D., 4,340,872, Cl. 333-152.000.

Eastman Kodak Company: *See*—
Carr, David L., 4,340,286, Cl. 354-105.000.
Collins, Richard A.; Tersteeg, Glenn E.; and Jessop, Thomas C., 4,340,390, Cl. 23-230.00B.
Hollister, Kenneth R.; and Thomas, Harold T., 4,340,655, Cl. 430-14.000.
Marsh, Harold P., 4,340,528, Cl. 524-513.000.
Martin, Thomas W.; Sandhu, Mohammad A.; and Savage, Dennis J., 4,340,454, Cl. 204-159.160.
Petke, Frederick D.; and McConnell, Richard L., 4,340,526, Cl. 524-292.000.
Zannucci, Joseph S.; Sublett, Bobby J.; and Irick, Gether, Jr., 4,340,718, Cl. 528-128.000.

Eaton Investment Company: *See*—
Pasley, Harry M., 4,340,078, Cl. 137-205.500.

Eblen, Ewald: *See*—
Stumpp, Gerhard; Eblen, Ewald; Hofmann, Karl; Amaya, Nestor R.; Schlagenhauf, Josef; and Kopse, Odon, 4,340,181, Cl. 239-533.300.

Eckberg, Richard P., to General Electric Company. Vinyl gum cure accelerators for addition-cure silicone. 4,340,647, Cl. 428-429.000.

Eckenhoff, James B., to ALZA Corporation. Self-driven hypodermic injector. 4,340,048, Cl. 128-213.00R.

Eddystone Radio Limited: *See*—
Cooke, Billy O.; and Nield, Philip N., 4,340,974, Cl. 455-258.000.

Edstrom, John O.: *See*—
Santen, Sven; and Edstrom, John O., 4,340,420, Cl. 75-10.00R.

Edwards, Alfred G., to Albright & Wilson Limited. Process for preparing a phenolic resin from an aralkylene ether and an aromatic aldehyde. 4,340,700, Cl. 525-503.000.

Edwards, Grant C.: *See*—
Vaughan, David E. W.; Edwards, Grant C.; and Barrett, Michael G., 4,340,573, Cl. 423-328.000.

Eggmann, Jean; Graf, Hans; and Zaba, Tadeusz, to BBC Brown, Boveri & Company Limited. Method and apparatus for cooling hot gas casings. 4,339,925, Cl. 60-757.000.

Egs-Skisport Gesellschaft fur Forschung und Entwicklung mbH: *See*—
Gertsch, Ulrich E., 4,340,242, Cl. 280-618.000.

Eholzer, Ulrich: *See*—
Schubart, Rudiger; Eholzer, Ulrich; Kempermann, Theo; and Roos, Ernst, 4,340,695, Cl. 525-350.000.

Ehrenfeld, Frank E., Jr., to Congoleum Corporation. Textured pile fabrics. 4,340,381, Cl. 8-114.500.

Ehrlich, Daniel J.: *See*—
Deutsch, Thomas F.; Ehrlich, Daniel J.; and Osgood, Richard M., 4,340,617, Cl. 427-53.100.

Ehrlich, Josef, to Outboard Marine Corporation. Two-stroke internal combustion engine and method of operation thereof. 4,340,016, Cl. 123-73.00R.

Eibeck, Richard E.: *See*—
Anello, Louis G.; Eibeck, Richard E.; and Robinson, Martin A., 4,340,548, Cl. 260-544.00Y.

Eicken, Karl; and Wuerzer, Bruno, to BASF Aktiengesellschaft. Herbicidal agents based on N-azolylmethylacetanilides and cyclohexane-1,3-dione derivatives. 4,340,418, Cl. 71-92.000.

Eicken, Karl: *See*—
Plath, Peter; Eicken, Karl; and Rohr, Wolfgang, 4,340,739, Cl. 548-236.000.

Eilingafeld, Heinz; Hansen, Guenter; and Seybold, Guenther, to BASF Aktiengesellschaft. Monoazo dyes of the thiazole series having a heterocyclic substituent in the 4-position. 4,340,537, Cl. 260-158.000.

Ekey, William J.: *See*—
Braun, John L.; Smith, Denver W.; and Ekey, William J., 4,340,853, Cl. 324-51.000.

Ekholm, Carl R., Jr., to Baxter Travenol Laboratories, Inc. Method and apparatus for removing the contents of flexible or collapsible containers. 4,340,152, Cl. 222-1.000.

Eldred, Thomas W. Maintenance lock for aircraft speed brake. 4,340,196, Cl. 244-1.00R.

Elevator GmbH: *See*—
Eriksson, Arvid, 4,340,131, Cl. 187-29.00R.

El-Ibiary, Yehia, to Sperry Corporation. Power transmission. 4,340,087, Cl. 137-625.640.

Elliott, James E., to Discovision Associates. Video disc player. 4,340,955, Cl. 369-213.000.

Emerson Electric Co.: *See*—
Hargraves, David P.; Pauli, Jude A.; and Williams, Steven E., 4,340,202, Cl. 251-31.000.
Roddy, Joseph T., 4,340,109, Cl. 164-97.000.

EMPI, Inc.: *See*—
Maurer, Donald D., 4,340,063, Cl. 128-421.000.

Emura, Tomoyuki: *See*—
Higashiguchi, Takeichi; Fukuoka, Masasuke; Emura, Tomoyuki; and Moriuchi, Yasuhiro, 4,340,530, Cl. 524-515.000.

Endo, Norio: *See*—
Iwamura, Soichi; Nishida, Yasuaki; Yamato, Toshimi; Sawazaki, Norikazu; Nishi, Yoshio; Watanabe, Masaharu; and Endo, Norio, 4,340,953, Cl. 369-126.000.

Endo, Tadakazu; and Saitoh, Shigemitsu, to Toray Industries, Inc. Thick-and-thin fibers and products therefrom. 4,340,631, Cl. 428-89.000.

Endo, Takeshi; Sakai, Katsumi; Chou, Kiyoaki; Inamoto, Yoshitaka; and Teshigawara, Haruhiko, to Fuji Kagaku Kogyo Kabushiki Kaisha. Nucleoside derivatives and process for preparing same. 4,340,728, Cl. 536-23.000.

Endo, Tomizo: *See*—
Aiba, Takaaki; Kaji, Hisatsugu; Endo, Tomizo; and Ishihara, Takao, 4,340,464, Cl. 208-40.000.

Endo, Tsunehiro; and Tazima, Humio, to Hitachi, Ltd. Power supply system. 4,340,931, Cl. 363-44.000.

Energy Conversion Devices, Inc.: *See*—
Ovshinsky, Stanford R.; Hines, Leon F.; Citkowski, Ronald W.; and Yu, Terry T., 4,340,662, Cl. 430-270.000.

Enge, Horst: *See*—
Dammert, Wolfgang; Enge, Horst; and Dufour, Jacques, 4,340,876, Cl. 335-276.000.

Engelsmann, Dieter: *See*—
Stemme, Otto; Staudacher, Frank; Lermann, Peter; Danhauser, Justus; Engelsmann, Dieter; and Wagner, Karl, 4,340,288, Cl. 354-171.000.

English, Kevin S., to Australian Telecommunications Commission. Transversal filter. 4,340,875, Cl. 333-166.000.

Enstrom, Rudolph J. Serviceable releasable socket retaining ratchet. 4,339,970, Cl. 81-60.000.

Erb, Robert A., to Franklin Institute, The; and RSP Co. Non-air-entraining mixer/dispenser. 4,340,056, Cl. 128-272.100.

Erickson, Donald C. Oxygen production by molten alkali metal salts. 4,340,578, Cl. 423-579.000.

Ericsson, Sven O. Lashing device. 4,340,329, Cl. 410-100.000.

Eriksson, Arvid, to Elevator GmbH. Operational control system for lift and elevator machinery. 4,340,131, Cl. 187-29.00R.

Espenscheid, Wilton F.; and Yan, Tsoung-yuan, to Mobil Oil Corporation. Process for the in-situ leaching of uranium. 4,340,252, Cl. 299-4.000.

Esser, Heinz: *See*—
Nolte, Wilfried; and Esser, Heinz, 4,340,518, Cl. 524-61.000.

Estel Hoogovens B.V.: *See*—
van Weelden, Jan H.; and Rietvink, Adrianus H., 4,340,401, Cl. 55-305.000.

Ethyl Corporation: *See*—
Mina, George L., 4,340,767, Cl. 568-720.000.

Evans, David G.; Zurbuchen, Jacques; and Leutenegger, Willi, to Ciba-Geigy Corporation. Process for the dyeing of fibre material. 4,340,387, Cl. 8-580.000.

Evans, Edwin R., to General Electric Company. Process for the preparation of granular silarylenesiloxane copolymers polymerized under conditions of shear. 4,340,711, Cl. 528-21.000.

Ewikon Entwicklung und Konstruktion GmbH & Co. KG: *See*—
Muller, Walter, 4,340,156, Cl. 222-146.0HE.

Ex-Cell-O Corporation: *See*—
Chalupsky, Clayton W.; and Clemen, David A., 4,340,362, Cl. 432-222.000.

Excelermatic Inc.: *See*—
Kraus, Charles E., 4,339,966, Cl. 74-650.000.

Exxon Research & Engineering Co.: *See*—
Brois, Stanley J.; and Ver Strate, Gary, 4,340,694, Cl. 525-342.000.

Ezoe, Mitsuhiko: *See*—
Oshiage, Katsunori; and Ezoe, Mitsuhiko, 4,340,021, Cl. 123-425.000.

Farley, Max F., to Mallinckrodt, Inc. Modular incubator control system with self-test capability. 4,340,859, Cl. 324-158.00R.

Farr, Glyn P. R., to Lucas Industries Limited. Hydraulic anti-skid braking systems for vehicles. 4,340,258, Cl. 303-115.000.

Fasang, Patrick P., to Siemens Corporation. Device for testing digital circuits using built-in logic block observers (BILBO's). 4,340,857, Cl. 324-73.00R.

Faudi Feinbau GmbH: *See—*
Potz, Karl; and Schutz, Rudolf, 4,340,476, Cl. 210-232.000.

Fehr, Erich: *See—*
Schwarz, Helmut; Dockner, Toni; Kempe, Uwe; Krug, Herbert; Praetorius, Werner; Magnussen, Peter; Gallei, Ewald; and Fehr, Erich, 4,340,744, Cl. 548-346.000.

Felton, Georgs N.: *See—*
Caldicott, Laurence C.; Cameron, Alastair D.; and Felton, Georgs N., 4,340,020, Cl. 123-374.000.

Fernandez, Avelino; Glass, Josef; and Osegowitsch, Viktor, to Agfa-Gevaert Aktiengesellschaft. Developing apparatus. 4,340,294, Cl. 354-321.000.

Ferranti Limited: *See—*
Hamilton, David C.; and Lipton, Kenneth S., 4,340,969, Cl. 372-93.000.

Ferris, Lester W.: *See—*
Moretti, Anthony L.; and Ferris, Lester W., 4,339,926, Cl. 62-5.000.

Ferrofluidics Corporation: *See—*
Yamamura, Akira; and Raj, Kuldip, 4,340,233, Cl. 277-1.000.

Fiber Industries, Inc.: *See—*
Cardell, Max L., 4,340,341, Cl. 425-72.00S.

Finch, James. Fuel level indicator. 4,339,998, Cl. 110-186.000.

Finckh, Hermann: *See—*
Meyer-Pittroff, Roland; Becker, Bernard; and Finckh, Hermann, 4,340,820, Cl. 290-40.00R.

Finike Italiana Marposs, S.p.A.: *See—*
Selleri, Narciso, 4,339,879, Cl. 33-178.00E.

Fink, Rudolf, to Draloric Electronic GmbH. Barrier-layer capacitor and process for the production thereof. 4,340,898, Cl. 357-10.000.

Fio Rito, William M.; and Kidd, Ralph E. Combination refuse pyrolysis and moisture reduction apparatus. 4,339,999, Cl. 110-226.000.

Firestone Tire & Rubber Company, The: *See—*
Bohm, Georg G. A.; Hamed, Gary R.; and Vescelius, Lee E., 4,340,684, Cl. 525-194.000.

Fischer, Arthur, to Du Pont de Nemours, E. I., and Company. Unit dose drug control package. 4,340,141, Cl. 206-531.000.

Fischer, Gustav, to Kraftwerk Union Aktiengesellschaft. Method for treating radioactive solutions. 4,340,499, Cl. 252-628.000.

Fischer, Joerg: *See—*
McQueen, Wayne F.; Schansman, Raymond R.; Hurd, William A.; Fischer, Joerg; and Dunn, Billy W., 4,340,784, Cl. 179-6.120.

Fischer & Porter Company: *See—*
Herzl, Peter J., 4,339,957, Cl. 73-861.240.
Shauger, Herbert A., 4,339,958, Cl. 73-861.170.

Fitzpatrick, Peter R.; Meyerand, Russell G., Jr.; and Shotwell, Kenneth E., to United Technologies Corporation. Heat pipe bag system. 4,339,929, Cl. 62-79.000.

Fivian, Daniel A., to Maag Gear-Wheel & Machine Co. Ltd. Method of grinding gear teeth flanks. 4,339,895, Cl. 51-287.000.

Flanders, Dale C.: *See—*
Smith, Henry I.; Austin, Stewart S.; and Flanders, Dale C., 4,340,305, Cl. 356-356.000.

Florida Data Corporation: *See—*
Bellinger, James E., 4,340,165, Cl. 228-173.00C.

Flour City Architectural Metals: *See—*
Ulbricht, Roger; and Cavalucci, Ralph, 4,339,892, Cl. 49-192.000.

FMC Corporation: *See—*
Orlando, Franklin P., 4,340,237, Cl. 280-92.000.

Focella, Antonino; Heveran, John E.; Teitel, Sidney; and Weigele, Manfred, to Hoffmann-La Roche Inc. Diagnostic test for barbiturates. 4,340,736, Cl. 544-301.000.

Foley, John J., Jr.: *See—*
DiCiaccio, James J.; and Foley, John J., Jr., 4,340,814, Cl. 250-231.0SE.

Fondse, Pieter J.: *See—*
den Toonder, Pieter; Seltenrijch, Johannes C.; Stubbs, Graham S.; Fondse, Pieter J.; and Jirka, Howard F., 4,340,906, Cl. 358-124.000.

Fontana, Frank J.; and Forte, Francis J., to Stewart-Warner Corporation. Combination caster and fixed support. 4,339,842, Cl. 16-32.000.

Ford, John M. B.; Magers, Wallace F.; and Palmisano, John J., to Realex Corporation. Vent-sealing, down-locked pump dispenser. 4,340,158, Cl. 222-321.000.

Ford Motor Company: *See—*
Keeney, Allen J., 4,340,516, Cl. 523-216.000.
Knight, Eric M.; and Greene, Edward S., 4,340,889, Cl. 340-793.000.
Steele, Duane F., 4,339,988, Cl. 91-493.000.

Forisek, Istvan: *See—*
Barsi, Karoly; Dorombozi, Laszlo; Forisek, Istvan; Kuburczik, Gyula; and Stuber, Gyorgy, 4,340,254, Cl. 299-11.000.

Formica Corporation: *See—*
Giesler, Harold C., 4,340,439, Cl. 156-323.000.

Forster, Helmut; Hini, Paul; and Stransky, Gerd, to Siemens Aktiengesellschaft. Magnetic suspension bearing. 4,340,260, Cl. 308-10.000.

Forster, Robert S.: *See—*
Robbins, Edward L.; and Forster, Robert S., 4,340,228, Cl. 273-138.00R.

Forte, Francis J.: *See—*
Fontana, Frank J.; and Forte, Francis J., 4,339,842, Cl. 16-32.000.

Fory, Werner: *See—*
Laanio, Verena; Fory, Werner; and Schurter, Rolf, 4,340,415, Cl. 71-76.000.
Laanio, Verena; Fory, Werner; and Schurter, Rolf, 4,340,747, Cl. 560-102.000.

Foschi, Sergio: *See—*
Borghi, Italo; Foschi, Sergio; and Galli, Paolo, 4,340,704, Cl. 526-125.000.

Foss, Robert P., to Du Pont de Nemours, E. I., and Company. Carbamated poly(vinyl alcohol) useful as a binder in elastomeric photopolymer compositions. 4,340,686, Cl. 525-59.000.

Fosse, Navarro T., to Hydrotile Machinery Company. Machine and method for making concrete product. 4,340,553, Cl. 264-40.700.

Foster, Francis S., to Ontario Cancer Institute. Cylindrical transducer ultrasonic scanner. 4,339,952, Cl. 73-624.000.

Foster, Theodore C., to Opcon, Inc. Cant movement and aligning mechanism. 4,340,137, Cl. 198-457.000.

Fournier, Roger H., to Warner & Swasey Company, The. Quick release hub assembly. 4,339,893, Cl. 51-168.000.

Foye, Thomas E.: *See—*
Arora, Manohar L.; Overway, Timothy A.; and Foye, Thomas E., 4,340,431, Cl. 106-262.000.

Frank, Friedhelm, to Blanc GmbH & Co. Articulate splint for surgical purposes. 4,340,041, Cl. 128-80.00C.

Frank, Howard G.: *See—*
Steiner, Artur; and Frank, Howard G., 4,340,369, Cl. 433-162.000.

Franke, Albrecht; Lenke, Dieter; Gries, Josef; and Lehmann, Hans D., to BASF Aktiengesellschaft. Aminopropanol derivatives of 6-hydroxy-2,3,4,5-tetrahydro-1H-1-benzazepin-2-one and pharmaceutical formulations containing the said compounds. 4,340,595, Cl. 424-244.000.

Franklin Institute, The: *See—*
Erb, Robert A., 4,340,056, Cl. 128-272.100.

Franks, Joseph, to Ion Tech Limited. Preparation of material for examination by transmission electron microscopy techniques. 4,340,815, Cl. 250-307.000.

Frassek, Karl-Heinz; and van Ooij, Willy J., to Akzo NV. Solid rubber adhesion promoter and a method for improving the adhesion of rubber to metal reinforcing elements embedded therein. 4,340,515, Cl. 524-274.000.

Frazier, Marvin J.: *See—*
Bridges, Jack E.; and Frazier, Marvin J., 4,340,770, Cl. 174-35.0MS.

Freeman, William T. Sky-light structure having a flexible-tube shaft. 4,339,900, Cl. 52-200.000.

Freiherr von Arnim, Dietlof; and Dahn, Rolf, to IWK Regler und Kompensatoren GmbH. Bellows element. 4,340,089, Cl. 138-121.000.

Freppel, Christian, to Compagnie Generale des Etablissements Michelin. Process for preparing bimodal or multimodal polymers of conjugated dienes. 4,340,703, Cl. 526-79.000.

Friedrich Grohe Armaturenfabrik GmbH, Firma: *See—*
Huber, Markus, 4,340,177, Cl. 239-242.000.

Fritze, Kurt. Arrangement for telemetrically monitoring moving machine parts. 4,340,890, Cl. 340-870.320.

Frommer, Moshe A.: *See—*
Kraus, Menahem A.; Livni, Avinoam; Nemas, Mara; and Frommer, Moshe A., 4,340,475, Cl. 210-232.000.

Fugitt, Robert B.; and Luckenbaugh, Raymond W., to Du Pont de Nemours, E. I., and Company. 3-(p-Alkylsulfonylphenyl)oxazolidinone derivatives as antibacterial agents. 4,340,606, Cl. 424-272.000.

Fuji Kagaku Kogyo Kabushiki Kaisha: *See—*
Endo, Takeshi; Sakai, Katsumi; Chou, Kiyoaki; Inamoto, Yoshitaka; and Teshigawara, Haruhiko, 4,340,728, Cl. 536-23.000.

Fuji Photo Film Co., Ltd.: *See—*
Kato, Hisatoyo; Ishida, Masamitsu; and Matsumoto, Seiji, 4,340,911, Cl. 358-280.000.
Kitajima, Masao; Arai, Fuminori; and Kondo, Asaji, 4,340,565, Cl. 422-56.000.
Matsumiya, Takeshi; and Minoda, Minoru, 4,340,621, Cl. 427-294.000.
Mikawa, Akikazu; and Naruo, Kyoichi, 4,340,663, Cl. 430-496.000.
Ono, Shigetoshi; and Fujita, Shinsaku, 4,340,661, Cl. 430-223.000.
Oono, Hiroshi; and Ohnishi, Masahiro, 4,340,894, Cl. 346-108.000.

Fujii, Hiroshi: *See—*
Nohira, Hiroyuki; Fujii, Hiroshi; Yajima, Masami; and Fujimura, Rieko, 4,340,751, Cl. 562-401.000.

Fujikawa, Tetsuzo, to Kawasaki Jukogyo Kabushiki Kaisha. Apparatus for cooling an engine. 4,340,123, Cl. 180-54.00A.

Fujiki, Koichi: *See—*
Obayashi, Shigeji; Nakamura, Morio; Fujiki, Koichi; and Yamamoto, Takushi, 4,340,706, Cl. 526-207.000.

Fujimoto, Mitsuhiro: *See—*
Asano, Tetsumasa; Fujimoto, Mitsuhiro; and Mizukawa, Ryuichi, 4,339,991, Cl. 98-40.0VM.

Fujimura, Rieko: *See—*
Nohira, Hiroyuki; Fujii, Hiroshi; Yajima, Masami; and Fujimura, Rieko, 4,340,751, Cl. 562-401.000.

Fujita, Shinsaku: *See—*
Ono, Shigetoshi; and Fujita, Shinsaku, 4,340,661, Cl. 430-223.000.

Fujita, Takeshi: *See—*
Kawamatsu, Yutaka; and Fujita, Takeshi, 4,340,605, Cl. 424-263.000.

Fujita, Yosuke; Fukushima, Fumio; Fukuda, Yoji; and Nitta, Tsuneharu, to Matsushita Electric Industrial Co., Ltd. Zinc sulfide ceramic material and cathode ray tubes using the same. 4,340,839, Cl. 313-466.000.

Fujitsu Limited: *See—*
Honda, Norio; and Sugahara, Takehisa, 4,340,902, Cl. 357-74.000.

Fujiwara, Tamio: *See—*
Kondo, Eiji; Mitsugi, Takashi; Fujiwara, Tamio; and Muneyuki, Ryonosuke, 4,340,672, Cl. 435-45.000.

Fukuda, Yoji: *See*—
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Fukui, George M.; Spencer, Herbert J.; and Williams, Laurens R., II, to Abbott Laboratories. Culture media for inactivation of bacterial growth inhibitors. 4,340,679, Cl. 435-253.000.
Fukumoto, Hiroshi: *See*—
Kiuchi, Masashi; Takasu, Yoshio; Fukumoto, Hiroshi; Hino, Takashi; Uchiyama, Masaki; and Mitsuhashi, Yasuo, 4,340,660, Cl. 430-106.600.
Fukuoka, Masasuke: *See*—
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Fukusaki, Megumi: *See*—
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Uemura, Yahiro; Nagatomo, Midori; Funakoshi, Satoshi; and Suyama, Tadakazu, 4,340,589, Cl. 424-101.000.
Furuichi, Shuhei; and Suzuki, Masakazu, to Kabushiki Kaisha Morita Seisakusho. Dental radiographic apparatus for photographing entire jaws. 4,340,971, Cl. 378-40.000.
Furukawa, Yoshiyasu; Kishimoto, Shoji; and Nishikawa, Kohei, to Takeda Chemical Industries, Ltd. Hypotensive imidazole derivatives. 4,340,598, Cl. 424-273.00R.
Furuta, Kenzi, to Olympus Optical Co., Ltd. Back spacing apparatus. 4,340,917, Cl. 360-74.200.
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Motoyama, Kazuyasu; Nakao, Toshihiro; Kanayama, Katsumi; and Furuta, Kenzi, 4,340,951, Cl. 369-53.000.
Fury, Michael A.; and Kumar, Ananda H., to International Business Machines Corporation. Process for forming refractory metal layers on ceramic substrate. 4,340,618, Cl. 427-96.000.
Fuss, Gary. Barbecue grill cover. 4,340,027, Cl. 126-25.00R.
G. D. Searle & Co.: *See*—
Henderson, Richard E. L.; Malek, Nancy J.; Moormann, Alan E.; and Pitzele, Barnett S., 4,340,730, Cl. 536-26.000.
G. H. Pfaff Pietzsch Industrieroboter: *See*—
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Gallei, Ewald: *See*—
Schwarz, Helmut; Dockner, Toni; Kempe, Uwe; Krug, Herbert; Praetorius, Werner; Magnussen, Peter; Gallei, Ewald; and Fehr, Erich, 4,340,744, Cl. 548-346.000.
Galli, Paolo: *See*—
Borghi, Italo; Foschi, Sergio; and Galli, Paolo, 4,340,704, Cl. 526-125.000.
Gammon, Michael W., to Metallurgical Processes Limited; and I.S.C. Smelting Limited. Charging of zinc-smelting blast furnaces. 4,340,423, Cl. 75-87.000.
Ganz, Manfred; and Gueldner, Enrique, to Siemens Corporation. Modular telecommunication system. 4,340,776, Cl. 178-3.000.
Gardner, David R.: *See*—
McKinney, Howard F.; Gardner, David R.; and Wear, Frederick C., 4,340,611, Cl. 426-241.000.
Garrett, Arthur E. Apportioning control apparatus to control measured dispensing. 4,340,159, Cl. 222-389.000.
Garrett Corporation, The: *See*—
Burch, Darrel W.; and Wojciehowski, James P., 4,339,916, Cl. 60-39.020.
LaGrone, Charles H., 4,339,917, Cl. 60-39.28R.
Mc'Carty, Frederick B.; and Silver, Alexander, 4,339,874, Cl. 29-598.000.
Gates Rubber Company, The: *See*—
Russ, Paul E., Sr., 4,340,378, Cl. 474-244.000.
Gaul, John H., Jr., to Dow Corning Corporation. Process for the preparation of poly(disilyl)silazane polymers and the polymers therefrom. 4,340,619, Cl. 427-228.000.
Gay, Eric L.: *See*—
Berke, Joseph J.; and Gay, Eric L., 4,340,060, Cl. 128-317.000.
Gearhart Industries, Inc.: *See*—
Hallmark, Bobby J., 4,339,948, Cl. 73-155.000.
Geary, John T.: *See*—
Gounder, Raj N.; and Geary, John T., 4,340,715, Cl. 528-99.000.
Geisow, Bernard H., to Daniel Industries, Inc. Pressure balanced safety valve for wells and flow lines. 4,340,088, Cl. 137-629.000.
General Electric Company: *See*—
Anderson, Thomas E., 4,340,843, Cl. 315-205.000.
Bergman, Rolf S.; and Lake, William H., 4,340,836, Cl. 313-211.000.
Boliver, Vincent J., 4,340,790, Cl. 200-144.00C.
Brown, Edgar D., Jr., 4,340,495, Cl. 252-78.300.
Brown, Edgar D., Jr., 4,340,710, Cl. 528-15.000.
Cella, James A., 4,340,753, Cl. 562-528.000.
Dennis, Mahlon D.; and Skinner, Frank R., 4,339,896, Cl. 51-298.000.
Eckberg, Richard P., 4,340,647, Cl. 428-429.000.
Evans, Edwin R., 4,340,711, Cl. 528-21.000.
Gowanlock, Thomas W., 4,340,325, Cl. 407-116.000.
Henkes, John L., 4,340,275, Cl. 350-128.000.
Jeram, Edward M.; and Smith, Alfred H., Jr., 4,340,709, Cl. 528-15.000.
Kresge, James S.; and Sakshaug, Eugene C., 4,340,924, Cl. 361-127.000.
Lasseter, Robert H., 4,340,921, Cl. 361-56.000.
Liu, Ping Y., 4,340,683, Cl. 525-148.000.
Luthra, Krishan L.; and Spacil, Henry S., 4,340,399, Cl. 55-72.000.
Reihl, Robert F.; and Wang, Kang-Lung, 4,339,869, Cl. 29-576.00B.
Schupp, Lewis J., 4,340,841, Cl. 315-75.000.
Strong, Herbert M., 4,340,576, Cl. 423-446.000.
Webb, Jimmy L.; and Mehta, Bharat M., 4,340,545, Cl. 549-241.000.
White, Dwain M.; and Loucks, George R., 4,340,696, Cl. 525-390.000.
Wingrove, Earl R., Jr., 4,340,904, Cl. 358-29.000.
General Electric Company Limited, The: *See*—
Woodhead, Peter, 4,340,865, Cl. 330-69.000.
General Foods Corporation: *See*—
Bucklew, Leonard E., 4,340,249, Cl. 294-95.000.
General Instrument Corporation: *See*—
Bazarian, Albert; Scannell, John W.; and Andersen, Clifford H., 4,340,923, Cl. 361-120.000.
General Motors Corporation: *See*—
Cheetham, Robert A.; and Sears, Ralph E., 4,340,832, Cl. 310-239.000.
Creager, John E., 4,340,023, Cl. 123-510.000.
General Motors Limited: *See*—
Poore, Edward C., 4,340,172, Cl. 236-13.000.
General Technology Applications, Inc.: *See*—
Weitzen, William, 4,340,076, Cl. 137-13.000.
General Time Corporation: *See*—
Goodnight, John W., 4,340,948, Cl. 368-158.000.
General Tire & Rubber Company, The: *See*—
Kuan, Tiong H., 4,340,104, Cl. 152-330.00L.
Geoffroy-Dechaume, Vincent. Knockdown seats of folded sheet material. 4,340,251, Cl. 297-440.000.
George, Robert D.; and Hoy, Robert P., to Mechaneer, Inc. Apparatus and method for winding armatures. 4,339,872, Cl. 29-597.000.
Georgia-Pacific Corporation: *See*—
DeLuca, Raymond F., 4,340,195, Cl. 242-55.300.
Germanas, Dalia: *See*—
Qualeatti, Gail M.; and Germanas, Dalia, 4,340,546, Cl. 260-409.000.
Gertsch, Ulrich E., to Egs-Skisport Gesellschaft fur Forschung und Entwicklung mbH. Safety ski binding. 4,340,242, Cl. 280-618.000.
Gesek, William; and Major, James M., to Siemens Corporation. Apparatus and method for controlling a modular telecommunication system. 4,340,775, Cl. 178-3.000.
Gesellschaft fur Kernenergieverwertung in Schiffbau und Schiffahrt GmbH: *See*—
Boddeker, Karl W.; and Wenzlaff, Axel, 4,340,428, Cl. 106-122.000.
Gessman, Lawrence J. Method and apparatus for displaying electrocardiogram signals. 4,340,065, Cl. 128-712.000.
Gibson, Sandra F., to McDonnell Douglas Corporation. *E. coli* sensitivity broth. 4,340,671, Cl. 435-32.000.
Giesler, Harold C., to Formica Corporation. Process of using a cushion for laminating operations. 4,340,439, Cl. 156-323.000.
Gilbertson, John R.; and Crout, Richard J. Antibacterial agent and method. 4,340,628, Cl. 424-49.000.
Gilks, George E.: *See*—
Capel, Antony C.; Yan, George; Gilks, George E.; and West, Rodney J., 4,340,961, Cl. 370-84.000.
Gill, George H.: *See*—
Konikoff, Robert S. K.; Rudolph, Richard G.; and Gill, George H., 4,340,929, Cl. 362-153.000.
Gill, Ronald P.; Tucker, Dempsey G.; and Hull, John E., Jr., to Peabody Coal Company. Mine vehicle safety apparatus. 4,340,920, Cl. 361-49.000.
Gillis, Robert E. Monkey maze. 4,340,217, Cl. 272-113.000.
Giner, Jose D.: *See*—
Lerner, Harry; Giner, Jose D.; and Soeldner, John S., 4,340,458, Cl. 204-195.00R.
Giner-Sorolla, Alfredo: *See*—
Simon, Lionel N.; Giner-Sorolla, Alfredo; and Guttag, Alvin, 4,340,726, Cl. 536-17.400.
Giovanini, Donald R.: *See*—
Langman, Richard A.; Giovanini, Donald R.; and Letzig, Michael P., 4,340,635, Cl. 428-164.000.
Glaenzer Spicer: *See*—
Orain, Michel A., 4,339,931, Cl. 464-111.000.
Glass, Josef: *See*—
Fernandez, Avelino; Glass, Josef; and Osegowitsch, Viktor, 4,340,294, Cl. 354-321.000.
Glass, Marvin. Method and apparatus for merchandise distribution control. 4,340,810, Cl. 235-375.000.
Global Precision Inc.: *See*—
Hayberg, Robert S., 4,340,352, Cl. 425-517.000.
Godderidge, Jean. Rotary quadrants of cable-making machines. 4,339,909, Cl. 57-58.520.
Godefroy, Andre: *See*—
Cretin, Bertrand; and Godefroy, Andre, 4,340,561, Cl. 264-297.000.
Godshall, Ned A.: *See*—
Raistrick, Ian D.; Godshall, Ned A.; and Huggins, Robert A., 4,340,652, Cl. 429-112.000.
Goedert, F.: *See*—
Vayssiere, Pierre; Roederer, Charles; Grosjean, Jean-Claude; Grave, Roland; Schleimer, F.; Goedert, F.; Henrion, R.; Lorang, L.; and Colling, J., 4,340,208, Cl. 266-220.000.

Gokin, Gennady P.: *See*—
Chichkin, Valentin P.; Shpigel, Efraim A.; Gokin, Gennady P.; Matjuschenko, Georgy E.; Kurakov, Nikolai N.; Rabinovich, Grigory B.; Samoilovsky, Sergei A.; Angel, Boris S.; Ilienko, Vladimir S.; Miterev, Vladimir P.; Zemlyanov, Leonid S.; and Krutkov, Anatoly F., 4,339,906, Cl. 56-327.00R.

Gold, Elijah H.; Berger, Joel G.; and Chang, Wei K., to Schering Corporation. 1-Substituted-4-aryl-1,2,5,6-tetrahydro and hexahydropyridines. 4,340,597, Cl. 424-256.000.

Gonzalez, Fernando C. Front transfer port system. 4,340,015, Cl. 123-73.00R.

Goodnight, John W., to General Time Corporation. Single-coil balance wheel for driving a mechanical movement. 4,340,948, Cl. 368-158.000.

Goodwin, Brian; and Middleton, Peter, to Medishield Corporation Limited, The. Apparatus for analysis of absorbed gases. 4,340,615, Cl. 427-2.000.

Goodyear Tire & Rubber Company, The: *See*—
Lal, Joginder; and Senyek, Michael L., 4,340,690, Cl. 525-271.000.
Lal, Joginder; and Senyek, Michael L., 4,340,691, Cl. 525-271.000.
Lal, Joginder; and Senyek, Michael L., 4,340,705, Cl. 526-139.000.

Gorike, Rudolf, to AKG Akustische u. Kino-Gerate Gesellschaft-mbH. Electroacoustic transducer. 4,340,787, Cl. 179-121.00D.

Gormley, Robert J.: *See*—
Rao, V. Udaya S.; and Gormley, Robert J., 4,340,503, Cl. 252-459.000.

Goronkin, Herbert, to United States of America, Air Force. Mesa epitaxial diode with oxide passivated junction and plated heat sink. 4,340,900, Cl. 357-56.000.

Gothe, Diethard, to VDO Adolf Schindling AG. Operating apparatus for an appliance of a motor vehicle. 4,340,945, Cl. 368-6.000.

Gottstein, William J., to Bristol-Myers Company. Derivatives of 6-bromo penicillanic acid. 4,340,539, Cl. 260-245.20R.

Gounder, Raj N.; and Geary, John T., to Lord Corporation. Epoxy resin compositions cured with imide-amines. 4,340,715, Cl. 528-99.000.

Gowanlock, Thomas W., to General Electric Co. Cutting insert for deep grooving. 4,340,325, Cl. 407-116.000.

Gradl, David A.: *See*—
Linnenbrink, Thomas E.; and Gradl, David A., 4,340,874, Cl. 333-165.000.

Graf, Hans: *See*—
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Granzow, Daniel B.: *See*—
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Grave, Roland: *See*—
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Gray, Gary M.; Schwartzkopf, George, Jr.; and J. T. Baker Chemical Co. 4-Phenoxy-2-butene derivatives as plant growth regulators. 4,340,765, Cl. 71-123.000.

Greaves, Gerald G., Jr., to Owens-Corning Fiberglas Corporation. Means for protecting underground tanks from damage by dipsticks. 4,340,009, Cl. 116-227.000.

Greaves, Jeffrey C.: *See*—
Willmore, Bruce A. E.; and Greaves, Jeffrey C., 4,340,701, Cl. 526-68.000.

Greber, Jorg F.; and Winkhaus, Gunter, to Vereinigte Aluminium-Werke Aktiengesellschaft. Process for producing modified alumina hydrate crystals. 4,340,579, Cl. 423-625.000.

Green Cross Corporation, The: *See*—
Mizushima, Yutaka; Yokoyama, Kazumasa; Nabeta, Kiichiro; Yamada, Noboru; and Suyama, Tadakazu, 4,340,594, Cl. 424-238.000.
Uemura, Yahiro; Nagatomo, Midori; Funakoshi, Satoshi; and Suyama, Tadakazu, 4,340,589, Cl. 424-101.000.

Green, James R. Wear bushing. 4,340,259, Cl. 308-4.00A.

Greenberg, William B. Cable stripper with peeler. 4,339,967, Cl. 81-9.510.

Greene, Edward S.: *See*—
Knight, Eric M.; and Greene, Edward S., 4,340,889, Cl. 340-793.000.

Greff, Richard J.: *See*—
Dennehey, T. Michael; Greff, Richard J.; and Wolf, Ludwig, Jr., 4,340,052, Cl. 128-247.000.

Gregg, Hendrick J. Wind power generating system. 4,340,822, Cl. 290-55.000.

Grier, Nathaniel: *See*—
Dybas, Richard A.; Grier, Nathaniel; and Witzel, Bruce E., 4,340,756, Cl. 564-367.000.

Gries, Josef: *See*—
Franke, Albrecht; Lenke, Dieter; Gries, Josef; and Lehmann, Hans D., 4,340,595, Cl. 424-244.000.

Griffiths, Kenneth G.; and Woods, Stephen C., to Zipatone Inc. Lettering kit and alignment grid therefor. 4,339,886, Cl. 40-595.000.

Grillot, John W.; and Young, Teddy R., to Caterpillar Tractor Co. Assembly of a track chain. 4,339,961, Cl. 74-110.000.

Grimmer, Paul D.: *See*—
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Grisar, Ulrich; and Berstermann, Wilhelm, to Kloeckner-Werke AG. Arrangement for the spectral analysis of substances. 4,340,303, Cl. 356-313.000.

Grishin, Boris P.; Gruznov, Alexandr G.; Romanov, Leonid M.; Vishnyak, Julian I.; Shugaeva, Nina A.; Bychkov, Nikolai M.; Lipets, Konstantin V.; and Zotov, Alexandr I. Process for producing high-molecular polyacetals. 4,340,720, Cl. 528-232.000.

Gros, Pierre: *See*—
Voisin, Guy; Jansen, Franz; and Gros, Pierre, 4,340,535, Cl. 260-112.00B.

Grosjean, Jean-Claude: *See*—
Vayssiere, Pierre; Roederer, Charles; Grosjean, Jean-Claude; Grave, Roland; Schleimer, F.; Goedert, F.; Henrion, R.; Lorang, L.; and Colling, J., 4,340,208, Cl. 266-220.000.

Gross, Laurence H.; and Sauers, Marvin E., to Union Carbide Corporation. Process for producing a molded article. 4,340,562, Cl. 264-328.200.

Gross, Robert M., to Ball Corporation. Method of making unfestooned plastic containers from polygonal blanks. 4,340,557, Cl. 264-146.000.

Grouiller, Herve, to Laboratories d'Hygiene et de Dietetique (L.H.D.). Process for preparing a polymer of three-dimensional structure of the cross-linked polyurethane type, product obtained according to this process and application thereof as swelling agent, particularly in therapeutics. 4,340,699, Cl. 525-460.000.

Grove Valve and Regulator Company: *See*—
Smith, Bryan; Keech, Andrew E.; and Dawson, Patricia A., 4,340,079, Cl. 137-207.000.

Grovender, Steven L., to Minnesota Mining and Manufacturing Company. Connector system. 4,340,266, Cl. 339-17.0CF.

Gruber, Werner, to Henkel Komanditgesellschaft auf Aktien. Anaerobically hardening adhesives and sealing compounds. 4,340,708, Cl. 526-313.000.

GRUNDIG E.M.V. Elektro-Mechanische Versuchsanstalt Max Grundig: *See*—
Jansen, Herbert, 4,340,918, Cl. 360-109.000.

Gruppo Lepetit S.p.A.: *See*—
Toja, Emilio; Omodei-Sale, Amedeo; and Selva, Domenica, 4,340,607, Cl. 424-273.00B.

Gruznov, Alexandr G.: *See*—
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Grzybowski, Holger: *See*—
Herzog, Heinz; Mohn, Heinrich; Schulke, Karl-Albert; and Grzybowski, Holger, 4,340,627, Cl. 428-36.000.

GTE Laboratories Incorporated: *See*—
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GTE Products Corporation: *See*—
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GTE Sylvania Incorporated: *See*—
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Gueldner, Enrique: *See*—
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Guerrero, Benjamin G.; Troup, Diana C.; and White, Peter C., to Mattel, Inc. Multiple function doll. 4,339,889, Cl. 46-135.00A.

Guibert, Raul. Freezing unit for pre-cooked food packages. 4,339,928, Cl. 62-62.000.

Guibord, Ronald D.; Harman, Neil W.; and Hennessy, Richard E., to Honeywell Information Systems Inc. Automatic note dispenser with purge control. 4,340,150, Cl. 221-21.000.

Guilinger, Terry R.: *See*—
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Gulbins, Erich: *See*—
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Gulf Oil Corporation: *See*—
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Gulf & Western Corporation: *See*—
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Gulf & Western Manufacturing Company: *See*—
Carrieri, Louis F., 4,339,975, Cl. 83-617.000.
Martins, Jose, 4,340,327, Cl. 408-59.000.

Gurries, Raymond A., to Resonant Technology Company. Resonantly driven vertical impact system. 4,340,255, Cl. 299-37.000.

Gustafson, Erik E. Operation table for big animals. 4,340,012, Cl. 119-103.000.

Guthrie, Robert W.; Kierstead, Richard W.; Mennona, Francis A.; and Sullivan, Ann C., to Hoffmann-La Roche Inc. Process for making chlorocitric acid. 4,340,754, Cl. 562-584.000.

Guttag, Alvin: *See*—
Simon, Lionel N.; Giner-Sorolla, Alfredo; and Guttag, Alvin, 4,340,726, Cl. 536-17.400.

Haberstump, Alfred H.: *See*—
Seibold, Paul F.; and Haberstump, Alfred H., 4,340,236, Cl. 280-38.000.

Hage, Albert. Ratchet wrench. 4,339,969, Cl. 81-57.390.

Haines, Robert C., to Dunlop Limited. Games racket. 4,340,226, Cl. 273-73.00F.

Halbach & Braun: *See*—
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Halcon SD Group, Inc., The: *See—*
Davidson, Walter C.; and Porcelli, Richard V., 4,340,569, Cl. 423-22.000.
Davidson, Walter C., 4,340,570, Cl. 423-22.000.
Hall, Beverly J.: *See—*
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Hall, George W., to Hall, Beverly J., a part interest. Device for holding surveyor's instrument. 4,339,880, Cl. 33-293.000.
Hall, Warren L.: *See—*
Raskin, Jerome S.; Hall, Warren L.; Holt, Charles P.; and Carlson, Gerald E., 4,340,807, Cl. 219-497.000.
Halliar, William R.: *See—*
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Halliburton Company: *See—*
Maheshwary, Ashok K.; and Ayers, William M., 4,340,321, Cl. 405-66.000.
Sutton, David L., 4,340,427, Cl. 106-87.000.
Hallmark, Bobby J., to Gearhart Industries, Inc. Well formation test-treat-test apparatus and method. 4,339,948, Cl. 73-155.000.
Hamed, Gary R.: *See—*
Bohm, Georg G. A.; Hamed, Gary R.; and Vescelius, Lee E., 4,340,684, Cl. 525-194.000.
Hamilton, Archie I.: *See—*
Johnson, Ted W.; Hamilton, William R.; and Hamilton, Archie I., 4,340,377, Cl. 474-81.000.
Hamilton Bros. Mfg. Co.: *See—*
Johnson, Ted W.; Hamilton, William R.; and Hamilton, Archie I., 4,340,377, Cl. 474-81.000.
Hamilton, David C.; and Lipton, Kenneth S., to Ferranti Limited. Laser apparatus. 4,340,969, Cl. 372-93.000.
Hamilton, William R.: *See—*
Johnson, Ted W.; Hamilton, William R.; and Hamilton, Archie I., 4,340,377, Cl. 474-81.000.
Hanagata, Takayoshi; and Noda, Atsushi, to Canon Kabushiki Kaisha. Apparatus for controlling the pulse period of pulses applied to a pulse motor. 4,340,848, Cl. 318-561.000.
Hanaoka, Naohiro, to Olympus Optical Co., Ltd. Thermomagnetic recording and reproducing apparatus. 4,340,914, Cl. 360-59.000.
Hanrot, Jean-Pascal; and Volpeliere, Jacky, to Aluminum Pechiney. Apparatus for the dust-free handling of powder substances. 4,340,136, Cl. 193-15.000.
Hans List: *See—*
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Hansen, Guenter: *See—*
Eilingsfeld, Heinz; Hansen, Guenter; and Seybold, Guenther, 4,340,537, Cl. 260-158.000.
Hanyu, Susumu; and Takenoya, Hideaki, to Janome Sewing Machine Co. Ltd. Upper shaft phase detecting system for sewing machines. 4,340,002, Cl. 112-158.00E.
Hanyu, Susumu; Hara, Kazumasa; and Koike, Mikio, to Janome Sewing Machine Co. Ltd. Lock stitching sewing machine with a thread tightening device. 4,340,003, Cl. 112-191.000.
Hara, Kazumasa: *See—*
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Hara, Toshizo: *See—*
Sutoh, Shinji; Sumikawa, Seiji; and Hara, Toshizo, 4,340,112, Cl. 165-16.000.
Harak, Arnold E., to United States of America, Energy. System for utilizing oil shale fines. 4,340,463, Cl. 208-11.00R.
Harding, Brian, to CAN-ENG Holdings Limited. Method of heat treating articles. 4,340,433, Cl. 148-16.000.
Hargraves, David P.; Pauli, Jude A.; and Williams, Steven E., to Emerson Electric Co. Four way valve. 4,340,202, Cl. 251-31.000.
Harman, Neil W.: *See—*
Guibord, Ronald D.; Harman, Neil W.; and Hennessy, Richard E., 4,340,150, Cl. 221-21.000.
Harper-Wyman Company: *See—*
Bergquist, Frank H., 4,340,806, Cl. 219-413.000.
Harris Corporation: *See—*
Bakula, Richard E.; Maly, Dennis L.; and Weemhoff, James H., 4,340,932, Cl. 364-200.000.
Hart, Jacque M. Diamond planar cutter. 4,340,256, Cl. 299-87.000.
Hart, John R.; Juergens, Stanley G.; and McCormack, William E., to Champion International Corporation. Starch fibrids useful in enhancing the physical properties of paper, and process of preparing same. 4,340,442, Cl. 162-146.000.
Hart, Robert J., to Commercial Resins Company. Internal girth coating apparatus. 4,340,010, Cl. 118-306.000.
Harte, Richard A.; and Bart, Max, to Daryl Laboratories, Inc. Immunoadsorptive surface coating for solid-phase immunosubstrate and solid-phase immunosubstrate. 4,340,564, Cl. 422-56.000.
Harvey Hubbell Incorporated: *See—*
Muchnick, Paul, 4,340,826, Cl. 307-157.000.
Hashimoto, Hideaki; Abe, Mitsuo; and Morita, Masaharu, to Prince Hotels, Inc. Interpreter intercommunication and public address system. 4,340,779, Cl. 179-1.00B.
Hassanali-Walji, Ahmed: *See—*
Johnson, Alan W.; and Hassanali-Walji, Ahmed, 4,340,732, Cl. 542-426.000.
Hata, Naoaki; Kojo, Hidehiko; and Akimoto, Koji, to Asahi Denka Kogyo K.K. Coating composition. 4,340,716, Cl. 528-100.000.
Hatta, Koichi: *See—*
Sakaue, Takashi; Hatta, Koichi; Fukusaki, Megumi; and Kataoka, Yoshiro, 4,340,375, Cl. 434-201.000.
Hatta, Yoshio; and Suzuki, Shigeo, to Shizuoka Seiki Co., Ltd. Oil combustion type infrared ray generating apparatus. 4,340,028, Cl. 126-92.00R.
Hauk, Ernest D.; and Kirkpatrick, Jesse C., to Hawk Industries, Inc. Annular casing hammer. 4,340,120, Cl. 173-131.000.
Hauser, Hans; and Clayborne, William J., to J. B. Foote Foundry Co., The. Transaxle with back-up flange. 4,339,965, Cl. 74-607.000.
Hauze, Albert W.: *See—*
DeBolt, Harold E.; Suplinskas, Raymond J.; Cornie, James A.; Henze, Thomas W.; and Hauze, Albert W., 4,340,636, Cl. 428-215.000.
Hawk Industries, Inc.: *See—*
Hauk, Ernest D.; and Kirkpatrick, Jesse C., 4,340,120, Cl. 173-131.000.
Hayashi, Keizo, to Toyoda Gosei Co., Ltd. Method of producing channel-shaped trim. 4,339,860, Cl. 29-413.000.
Hayashi, Yutaka: *See—*
Nishizawa, Jun-ichi; and Hayashi, Yutaka, 4,340,827, Cl. 307-477.000.
Hayberg, Robert S., to Global Precision Inc. Hinge exercising mechanism. 4,340,352, Cl. 425-517.000.
Hays, Lance G.; Amend, William E.; and Hokenson, Gustave J., to Biphase Energy Systems. Scoop for removing fluid from rotating surface of two-phase reaction turbine. 4,339,923, Cl. 60-673.000.
Hazan, Isidor, to Du Pont de Nemours, E. I., and Company. Electrocoating composition with polyhydroxyamine and epoxy. 4,340,523, Cl. 524-504.000.
Hede, Allan, to ASEA Aktiebolag. Method of manufacturing stainless ferritic-austenitic steel. 4,340,432, Cl. 148-11.50P.
Hedrick, Geoffrey S. M., to Smiths Industries Limited. Pressure transducer cross-check system. 4,339,943, Cl. 73-4.00R.
Heenan, Sidney A.: *See—*
Johnson, Glenn W., Jr.; and Heenan, Sidney A., 4,340,319, Cl. 404-16.000.
Heffelmire, Brad A.: *See—*
Cimochowski, Anthony E.; and Heffelmire, Brad A., 4,339,902, Cl. 52-506.000.
Hehl, Karl. Mechanical safety cover interlock for injection molding machine. 4,340,346, Cl. 425-152.000.
Heil, Donald J., to American Hospital Supply Corporation. Water/air spray system for dental handpiece. 4,340,366, Cl. 433-82.000.
Heiman, Joseph L.; and Reckseit, Bernard S., to Nivison-Weiskopf Co., The. Roll dispenser carton. 4,340,162, Cl. 225-48.000.
Hein, George N., Jr., to Beckman Instruments, Inc. Air driven centrifuge adjustable rotor seat. 4,340,171, Cl. 233-23.00R.
Hein, Helmut, to Steag AG. Fluidized bed furnace. 4,340,000, Cl. 110-245.000.
Heinrichs, Ernst: *See—*
Schiffer, Peter; Heinrichs, Ernst; and Helten, Manfred, 4,340,077, Cl. 137-68.00A.
Heist, Kenneth D., to Sporteach, Inc. Transmitter/receiver teaching apparatus. 4,340,972, Cl. 455-39.000.
Heitmann, Arnold M.; and Lord, Richard E., Jr., to Northern Research & Engineering Corp. Splineless coupling means. 4,340,317, Cl. 403-25.000.
Heller Designs, Inc.: *See—*
Cousins, Morison S., 4,340,144, Cl. 211-87.000.
Helten, Manfred: *See—*
Schiffer, Peter; Heinrichs, Ernst; and Helten, Manfred, 4,340,077, Cl. 137-68.00A.
Hemm, Ansgar; and Deppner-Hiemesch, Harald, to Sperry Vickers, Division of Sperry GmbH. Hydraulic control valve unit. 4,340,086, Cl. 137-554.000.
Henderson, Richard E. L.; Malek, Nancy J.; Moormann, Alan E.; and Pitzele, Barnett S., to G. D. Searle & Co. N^6-Substituted adenosines. 4,340,730, Cl. 536-26.000.
Hendricks, Charles J.; Hicks, William W.; and Keller, John H., to International Business Machines Corp. Modified RIE chamber for uniform silicon etching. 4,340,461, Cl. 204-298.000.
Hendrickson, Thomas C., to Colgate-Palmolive Company. Scrim reinforced plastic film. 4,340,558, Cl. 264-151.000.
Henkel Komanditgesellschaft auf Aktien: *See—*
Gruber, Werner, 4,340,708, Cl. 526-313.000.
Henkes, John L., to General Electric Company. Rear projection screen with patterned lenticular prismatic structure. 4,340,275, Cl. 350-128.000.
Hennessy, Richard E.: *See—*
Guibord, Ronald D.; Harman, Neil W.; and Hennessy, Richard E., 4,340,150, Cl. 221-21.000.
Hennion, Claude: *See—*
Lewiner, Jacques; and Hennion, Claude, 4,340,925, Cl. 361-172.000.
Henrion, R.: *See—*
Vayssiere, Pierre; Roederer, Charles; Grosjean, Jean-Claude; Grave, Roland; Schleimer, F.; Goedert, F.; Henrion, R.; Lorang, L.; and Colling, J., 4,340,208, Cl. 266-220.000.
Henze, Thomas W.: *See—*
DeBolt, Harold E.; Suplinskas, Raymond J.; Cornie, James A.; Henze, Thomas W.; and Hauze, Albert W., 4,340,636, Cl. 428-215.000.
Heraeus Quarzschmelze GmbH: *See—*
Herzog, Heinz; Mohn, Heinrich; Schulke, Karl-Albert; and Grzybowski, Holger, 4,340,627, Cl. 428-36.000.
Herd, David P., to Smith International, Inc. High pressure gate valve with preloaded, stacked, solid lubricated stem seals. 4,340,204, Cl. 251-327.000.

Herden, Werner, to Robert Bosch GmbH. Hall generator pressure transducer. 4,340,877, Cl. 338-42.000.
Hermann, Karl H., to Bayer Aktiengesellschaft. Preparation of basic triarylmethane dyestuffs. 4,340,540, Cl. 548-440.000.
Herron, Lester W.: *See*—
Dubetsky, Derry J.; Herron, Lester W.; and Master, Raj N., 4,340,436, Cl. 156-89.000.
Herzl, Peter J., to Fischer & Porter Company. Vortex-shedding flowmeter with unitary shedder/sensor. 4,339,957, Cl. 73-861.240.
Herzog, Heinz; Mohn, Heinrich; Schulke, Karl-Albert; and Grzybowski, Holger, to Heraeus Quarzschmelze GmbH. Wound and sintered vitreous silica article and method of making. 4,340,627, Cl. 428-36.000.
Hettche, Albert: *See*—
Klahr, Erhard; Hettche, Albert; Trieselt, Wolfgang; Stoeckigt, Dieter; and Trapp, Horst, 4,340,766, Cl. 568-625.000.
Heveran, John E.: *See*—
Focella, Antonino; Heveran, John E.; Teitel, Sidney; and Weigele, Manfred, 4,340,736, Cl. 544-301.000.
Hibbard, Neil K.; Kinsey, Cliff J.; and Belongia, Clyde G., to Sta-Rite Industries, Inc. Hydromassage apparatus. 4,340,039, Cl. 128-66.000.
Hicks, William W.: *See*—
Hendricks, Charles J.; Hicks, William W.; and Keller, John H., 4,340,461, Cl. 204-298.000.
Higashiguchi, Takeichi; Fukuoka, Masasuke; Emura, Tomoyuki; and Moriuchi, Yasuhiro, to Sumitomo Bakelite Company Limited; and Sumitomo Chemical Company Limited. Vinyl chloride type resin composition. 4,340,530, Cl. 524-515.000.
Highlander, Sarah K.: *See*—
Manis, Jack J.; and Highlander, Sarah K., 4,340,674, Cl. 435-172.000.
Highstreet, Edward J.: *See*—
Stannard, Forrest B.; and Highstreet, Edward J., 4,340,478, Cl. 210-286.000.
Higuchi, Noboru; Yano, Teruo; and Ohnishi, Masahiro, to NGK Insulators, Ltd. Ceramic honeycomb filter. 4,340,403, Cl. 55-523.000.
Hildebrand, Karl J.; and Leeman, John, to Leeman Labs, Inc. Stabilized cathode assembly for arc light source. 4,340,845, Cl. 315-327.000.
Hillenbrand, Louis J.; Preston, Joseph R.; and Berry, David A., to RCA Corporation. High density information disc. 4,340,629, Cl. 428-64.000.
Hilterhaus, Karl-Heinz: *See*—
Reuter, Franz G.; and Hilterhaus, Karl-Heinz, 4,340,681, Cl. 521-123.000.
Hilti Aktiengesellschaft: *See*—
Koob, Friedrich; and Lang, Gusztav, 4,340,637, Cl. 428-220.000.
Hinderstein, Philip M.: *See*—
Malloy, James T., 4,340,858, Cl. 324-158.00P.
Hines, Leon F.: *See*—
Ovshinsky, Stanford R.; Hines, Leon F.; Citkowski, Ronald W.; and Yu, Terry T., 4,340,662, Cl. 430-270.000.
Hini, Paul: *See*—
Forster, Helmut; Hini, Paul; and Stransky, Gerd, 4,340,260, Cl. 308-10.000.
Hino, Takashi: *See*—
Kiuchi, Masashi; Takasu, Yoshio; Fukumoto, Hiroshi; Hino, Takashi; Uchiyama, Masaki; and Mitsuhashi, Yasuo, 4,340,660, Cl. 430-106.600.
Hiraga, Masaharu; and Terauchi, Kiyoshi, to Sankyo Electric Company Limited. Scroll type compressor with oil passageways through the housing. 4,340,339, Cl. 418-55.000.
Hirai, Kazuo: *See*—
Matsushita, Takao; and Hirai, Kazuo, 4,340,090, Cl. 138-177.000.
Hirai, Toshio; and Niihara, Koichi, to Research Institute for Iron, Steel and Other Metals of the Tohoku University, The. Super hard highly pure silicon nitrides and a process and apparatus for producing the same. 4,340,568, Cl. 422-245.000.
Hiraoka, Fumio: *See*—
Okamura, Koichi; Kusakabe, Susumu; Yoshida, Masahiro; and Hiraoka, Fumio, 4,339,983, Cl. 41-466.000.
Hirasawa, Yoshihei: *See*—
Aoki, Tadao; Miyakoshi, Hideo; Hirasawa, Yoshihei; and Nishii, Yasuo, 4,340,604, Cl. 424-236.000.
Hirata, Atsumi; and Kayanuma, Kanji, to Victor Company of Japan, Ltd. Special reproducing system in an apparatus for reproducing video signals from a rotary recording medium. 4,340,907, Cl. 358-128.600.
Hise, Eugene C., Jr.; and Holman, Allen S., to United States of America, Energy. Method and apparatus for separating materials magnetically. 4,340,468, Cl. 209-214.000.
Hitachi, Ltd.: *See*—
Endo, Tsunehiro; and Tazima, Humio, 4,340,931, Cl. 363-44.000.
Ichikawa, Akira; Nakata, Kazuo; Nakajima, Akira; Ohta, Yoshihiro; and Umemura, Kazuhiro, 4,340,781, Cl. 179-1.0SA.
Kanamaru, Hisanobu; Okabe, Moisei; Tatsumi, Hideo; Tohkairin, Akira; and Kasama, Ryoji, 4,339,873, Cl. 29-598.000.
Maio, Kenji; and Sudo, Tsuneta, 4,340,882, Cl. 340-347.0CC.
Sugiyama, Tomonori; and Suehiro, Akio, 4,340,783, Cl. 179-2.00A.
Hitchiner Manufacturing Co., Inc.: *See*—
Chandley, George D.; and Sharkey, Richard L., 4,340,108, Cl. 164-63.000.
Hitzman, Donald O., to Phillips Petroleum Company. Fermentation process. 4,340,677, Cl. 435-246.000.
Ho, Chungfah H., to Du Pont de Nemours, E. I., and Company. Oligomer pellets of ethylene terephthalate. 4,340,550, Cl. 264-13.000.
Hobourn-Eaton Limited: *See*—
Bristow, Ian T.; and Petts, Nigel J., 4,340,337, Cl. 417-304.000.
Hobson, Russell B., Jr.; and Vannelli, Roger B. Vacuum sludge receiver. 4,340,477, Cl. 210-241.000.
Hochner, Walter L.: *See*—
Wells, Herbert A.; Hochner, Walter L.; and Matacek, George F., 4,340,632, Cl. 428-90.000.
Hodogaya Chemical Co., Ltd.: *See*—
Jinbo, Susumu; Kohno, Shoichi; and Onishi, Masatoshi, 4,340,768, Cl. 568-730.000.
Hoechst Aktiengesellschaft: *See*—
Baltes, Herbert; Leupold, Ernst I.; and Wunder, Friedrich, 4,340,748, Cl. 560-177.000.
Bar, Helmut; Mader, Herbert; Muck, Karl-Friedrich; and Zorner, Paul, 4,340,542, Cl. 549-368.000.
Mayer, Reinhart, 4,340,429, Cl. 106-164.000.
Rohser, Helmut, 4,340,383, Cl. 8-494.000.
Schein, Eberhard, 4,340,596, Cl. 424-251.000.
Semler, Gunther; and Schaeffer, Georg, 4,340,746, Cl. 549-78.000.
Wiezer, Hartmut; and Pfahler, Gerhard, 4,340,534, Cl. 524-99.000.
Hoedl, Fritz; Kimura, Morihiro; and Yasuda, Yoshio, to Veitscher Magnesitwerke-Aktiengesellschaft; and Shinagawa Refractories Co., Ltd. Fire brick for a rotary kiln. 4,340,360, Cl. 432-119.000.
Hoffmann, Alexander: *See*—
Pusch, Gunter; Aisslinger, Dieter E.; Hoffmann, Alexander; and Pusch, Klaus-Werner, 4,340,634, Cl. 428-134.000.
Hoffmann-La Roche Inc.: *See*—
D'Souza, Richard; and Kiss, Joseph, 4,340,729, Cl. 536-23.000.
Focella, Antonino; Heveran, John E.; Teitel, Sidney; and Weigele, Manfred, 4,340,736, Cl. 544-301.000.
Guthrie, Robert W.; Kierstead, Richard W.; Mennona, Francis A.; and Sullivan, Ann C., 4,340,754, Cl. 562-584.000.
Hofmann, Eberhard, to Schubert & Salzer. Open-end spinning rotor consisting of a basic member and a rotor member. 4,339,911, Cl. 57-416.000.
Hofmann, Karl: *See*—
Stumpp, Gerhard; Eblen, Ewald; Hofmann, Karl; Amaya, Nestor R.; Schlagenhauf, Josef; and Kopse, Odon, 4,340,181, Cl. 239-533.300.
Hogan, Paul. Portable locking and alarm system. 4,340,007, Cl. 116-81.000.
Hohmann, Thomas, Jr. Rotatable vehicle headlights. 4,340,928, Cl. 362-49.000.
Hokenson, Gustave J.: *See*—
Hays, Lance G.; Amend, William E.; and Hokenson, Gustave J., 4,339,923, Cl. 60-673.000.
Hollingsworth GmbH: *See*—
Schmolke, Karl-Heinz, 4,339,851, Cl. 19-97.000.
Hollister, Kenneth R.; and Thomas, Harold T., to Eastman Kodak Company. Thermal and mechanical barrier layers for optical recording elements. 4,340,655, Cl. 430-14.000.
Holman, Allen S.: *See*—
Hise, Eugene C., Jr.; and Holman, Allen S., 4,340,468, Cl. 209-214.000.
Holt, Charles P.: *See*—
Raskin, Jerome S.; Hall, Warren L.; Holt, Charles P.; and Carlson, Gerald E., 4,340,807, Cl. 219-497.000.
Honda, Akira; Ishikawa, Masaru; Mizuoka, Seishi; and Ono, Katsunori, to Nippon Kokan Kabushiki Kaisha. Apparatus for connecting tundish and mold for horizontal continuous casting of metal. 4,340,110, Cl. 164-435.000.
Honda Giken Kogyo Kabushiki Kaisha: *See*—
Kato, Yoshitaka; Maesaka, Kiyotomi; Matsui, Seiichi; and Iizuka, Yoshitoku, 4,340,017, Cl. 123-182.000.
Watanabe, Masaki; Shimoyama, Hiroshi; and Suzuki, Keiji, 4,340,125, Cl. 180-215.000.
Honda, Norio; and Sugahara, Takehisa, to Fujitsu Limited. Semiconductor device. 4,340,902, Cl. 357-74.000.
Honeywell Inc.: *See*—
Kompelien, Arlon D., 4,340,173, Cl. 236-46.00R.
Nelson, Lorne W.; and Torborg, Ralph H., 4,340,355, Cl. 431-20.000.
Honeywell Information Systems Inc.: *See*—
Guibord, Ronald D.; Harman, Neil W.; and Hennessy, Richard E., 4,340,150, Cl. 221-21.000.
Miu, Ming T.; Bradley, John J.; Panepinto, William, Jr.; and Shen, Jian-Kuo, 4,340,933, Cl. 364-200.000.
Honnold, Fred V., Jr.: *See*—
Wright, William E.; and Honnold, Fred V., Jr., 4,340,115, Cl. 165-122.000.
Hooke, Helen; and Lerner, David. Loop tape recorder. 4,339,980, Cl. 84-1.280.
Hoover Universal, Inc.: *See*—
Mizelle, Ned W., 4,339,834, Cl. 5-255.000.
Straus, Albert E., 4,340,082, Cl. 137-426.000.
Hopper, Thomas P. Solar energy collecting apparatus. 4,340,034, Cl. 126-438.000.
Hori, Mikio: *See*—
Koda, Akihide; Hori, Mikio; Yasumoto, Mitsugi; Yamawaki, Ichiro; Yamada, Yuji; and Takikawa, Katsuo, 4,340,543, Cl. 549-414.000.
Horigome, Eiji: *See*—
Ota, Hiroshi; Horigome, Eiji; and Azegami, Hitoshi, 4,340,644, Cl. 428-423.700.
Hornby, William E.; and Morris, David L., to Miles Laboratories, Inc. Heme-labeled specific binding assay. 4,340,668, Cl. 435-7.000.

Hornle, Reinhold: *See*—
Nonn, Konrad; Laser, Joachim; Wolf, Karlheinz; Hornle, Reinhold; and Istel, Erich, 4,340,389, Cl. 8-620.000.

Horton, Edward R.; and Hughes, John L., to Caterpillar Tractor Co. Method of connecting a tube to a flange. 4,339,866, Cl. 29-523.000.

Hoshino Gakki Ten, Inc.: *See*—
Hoshino, Masao, 4,339,982, Cl. 84-415.000.

Hoshino, Masao, to Hoshino Gakki Ten, Inc. Snare bed strainer for snare drum. 4,339,982, Cl. 84-415.000.

Hottes, Carl J., to Perkin-Elmer Corporation, The. Manufacture of glass base lamp. 4,340,264, Cl. 316-19.000.

Houdaille Industries, Inc.: *See*—
McLean, Ronald L.; and Kamman, Gordon W., 4,339,862, Cl. 29-424.000.
Snow, John P., 4,340,084, Cl. 137-512.000.

Housel, David S., to Interstab Chemicals Inc. Non-toxic liquid stabilizer for halogenated hydrocarbon resins and process for stabilizing such resins. 4,340,514, Cl. 524-77.000.

Howanietz, Friedrich; and Kozlowski, Alexander. Concrete mixtures or mortar mixtures or concretes or mortars and process for their production. 4,340,510, Cl. 260-8.000.

Howard, William G.; Strohkirch, John C.; and Pehl, Marilyn A., to Medtronic, Inc. Cathode material and high capacity lithium-iodine cells. 4,340,651, Cl. 429-101.000.

Hoy, Robert P.: *See*—
George, Robert D.; and Hoy, Robert P., 4,339,872, Cl. 29-597.000.

Hoyer-Ellefsen, Sigurd, to SCM Corporation. Electric motor assembly. 4,340,830, Cl. 310-89.000.

Hubbard, S. Eugene, to Kawneer Company, Inc. System for improving heat insulating characteristics of a building wall structure. 4,339,901, Cl. 52-202.000.

Huber, Manfred: *See*—
Derendorf, Walter; and Huber, Manfred, 4,340,188, Cl. 242-68.500.

Huber, Markus, to Friedrich Grohe Armaturenfabrik GmbH, Firma. Shower device. 4,340,177, Cl. 239-242.000.

Hubner, Wolfgang; Schroers, Otto; and Sladeck, Hans J., to Chemische Fabrik Stockhausen & Cie. Additive for deep-well cement slurries. 4,340,525, Cl. 252-8.55B.

Huddleston, George R., Jr.; and Turner, James W., to B. F. Goodrich Company, The. Ultrafiltration of vinyl resin latices and reuse of permeate in emulsion polymerization. 4,340,702, Cl. 526-70.000.

Hudson Oxygen Therapy Sales Company: *See*—
Clary, Thomas R., 4,340,336, Cl. 417-189.000.

Hufer, Norbert: *See*—
Schippers, Heinz; Hufer, Norbert; Munnekehoff, Gerd; and Teich, Udo, 4,340,187, Cl. 242-35.50A.

Huggins, Robert A.: *See*—
Raistrick, Ian D.; Godshall, Ned A.; and Huggins, Robert A., 4,340,652, Cl. 429-112.000.

Hughes, John L.: *See*—
Horton, Edward R.; and Hughes, John L., 4,339,866, Cl. 29-523.000.

Hughes Tool Company: *See*—
Cole, Thomas F., 4,339,946, Cl. 73-151.000.

Huhne, Gerd, to G. H. Pfaff Pietzsch Industrieroboter. Drive, particularly for an industrial manipulator. 4,339,984, Cl. 91-42.000.

Hull, John E., Jr.: *See*—
Gill, Ronald P.; Tucker, Dempsey G.; and Hull, John E., Jr., 4,340,920, Cl. 361-49.000.

Hurd, William A.: *See*—
McQueen, Wayne F.; Schansman, Raymond R.; Hurd, William A.; Fischer, Joerg; and Dunn, Billy W., 4,340,784, Cl. 179-6.120.

Husimi, Kazuo; and Kim, Chisu. Epitaxial integrated E-dE solid state detector telescope. 4,340,899, Cl. 357-29.000.

Hydrotile Machinery Company: *See*—
Fosse, Navarro T., 4,340,553, Cl. 264-40.700.

I.S.C. Smelting Limited: *See*—
Gammon, Michael W., 4,340,423, Cl. 75-87.000.

Ibex Inking Systems Corp.: *See*—
Bishop, John W. H., 4,340,313, Cl. 400-202.100.

Ichikawa, Akira; Nakata, Kazuo; Nakajima, Akira; Ohta, Yoshihiro; and Umemura, Kazuhiro, to Hitachi, Ltd. Speech analysing device. 4,340,781, Cl. 179-1.0SA.

Iga, Kenichi: *See*—
Akiba, Shigeyuki; Suematsu, Yasuharu; Arai, Shigehisa; Kodaira, Masanobu; Itaya, Yoshio; Iga, Kenichi; Ota, Chuichi; Yamamoto, Takaya; and Sakai, Kazuo, 4,340,966, Cl. 372-45.000.

Iizuka, Yoshitoku: *See*—
Kato, Yoshitaka; Maesaka, Kiyotomi; Matsui, Seiichi; and Iizuka, Yoshitoku, 4,340,017, Cl. 123-182.000.

Ikeda, Yorifumi; and Tsujimoto, Yasuhiro, to Takeda Chemical Industries, Ltd. Countercurrent liquid-solid contacting apparatus. 4,340,485, Cl. 210-675.000.

Ikedo, Yuji, to Pioneer Electronic Corporation. Automatic disc loading mechanism. 4,340,952, Cl. 369-77.000.

Ikegami, Teruhiro: *See*—
Sugawara, Kohichi; Matsui, Isamu; Ishimaru, Naoki; and Ikegami, Teruhiro, 4,340,577, Cl. 423-450.000.

Ikemori, Keiji, to Canon Kabushiki Kaisha. Rear attachment lens. 4,340,279, Cl. 350-422.000.

Ikesue, Haruyuki, to NSK-Warner K.K. Buckle assembly for seat belt. 4,339,854, Cl. 24-230.0AL.

Ikimi, Kiyoshi: *See*—
Suzukamo, Gohu; Takano, Tetsuo; Tamura, Mitsuhisa; and Ikimi, Kiyoshi, 4,340,544, Cl. 549-356.000.

Ilienko, Vladimir S.: *See*—
Chichkin, Valentin P.; Shpigel, Efraim A.; Gokin, Gennady P.; Matjuschenko, Georgy E.; Kurakov, Nikolai N.; Rabinovich, Grigory B.; Samoilovsky, Sergei A.; Angel, Boris S.; Ilienko, Vladimir S.; Miterev, Vladimir P.; Zemlyanov, Leonid S.; and Krutkov, Anatoly F., 4,339,906, Cl. 56-327.00R.

Imai, Hiroshi: *See*—
Ohno, Akira; Katayama, Shitomi; Nomura, Suguru; Senaha, Susumu; Kyo, Suizo; Shimomura, Susumu; Akagami, Akira; and Imai, Hiroshi, 4,340,646, Cl. 428-429.000.

Imamura, Akio, to Nippon Gakki Seizo Kabushiki Kaisha. Electronic musical instrument with programmed accompaniment function. 4,339,978, Cl. 84-1.030.

IMI Yorkshire Imperial Plastics Limited: *See*—
Aston, William C.; and Walker, Derek, 4,340,344, Cl. 425-149.000.

Imperial Chemical Industries Limited: *See*—
Backhouse, Alan J.; and Palluel, Auguste L., 4,340,511, Cl. 524-504.000.
Bye, Ashley D., 4,340,502, Cl. 252-429.00B.
Davidson, Peter J., 4,340,501, Cl. 252-373.000.
Milner, David J., 4,340,764, Cl. 568-386.000.
Willmore, Bruce A. E.; and Greaves, Jeffrey C., 4,340,701, Cl. 526-68.000.

Imperial Group Limited: *See*—
Bolt, Anthony J. N.; and Chard, Brian C., 4,340,072, Cl. 131-273.000.

Inamoto, Yoshitaka: *See*—
Endo, Takeshi; Sakai, Katsumi; Chou, Kiyoaki; Inamoto, Yoshitaka; and Teshigawara, Haruhiko, 4,340,728, Cl. 536-23.000.

Inooka, Masayoshi, to Chiyoda Chemical Engineering & Construction Co., Ltd. Process for hydrotreating heavy oils containing metals. 4,340,466, Cl. 208-210.000.

Inoue, Eiichi; and Shimizu, Isamu, to Mita Industrial Co., Ltd. Laminated ZnO photosensitive material. 4,340,658, Cl. 430-58.000.

Inoue, Hideo, to Shima Idea Center, Co., Ltd. Racking device for flat knitting machine. 4,339,933, Cl. 66-69.000.

Institut de Recherches de la Siderurgie Francaise: *See*—
Vayssiere, Pierre; Roederer, Charles; Grosjean, Jean-Claude; Grave, Roland; Schleimer, F.; Goedert, F.; Henrion, R.; Lorang, L.; and Colling, J., 4,340,208, Cl. 266-220.000.

Institut Francais du Petrole: *See*—
Courty, Philippe; Rabinovich, Georgy L.; Mojaiko, Victor N.; and Le Page, Jean-Francois, 4,340,504, Cl. 252-465.000.

International Business Machines Corporation: *See*—
Aboelfotoh, Mohamed O.; and Skolnik, Marvin B., 4,340,840, Cl. 315-58.000.
Delaporte, Francois X.; Lebesnerais, Gerard M.; and Pantani, Jean-Pierre, 4,340,922, Cl. 361-91.000.
Dubetsky, Derry J.; Herron, Lester W.; and Master, Raj N., 4,340,436, Cl. 156-89.000.
Fury, Michael A.; and Kumar, Ananda H., 4,340,618, Cl. 427-96.000.
Hendricks, Charles J.; Hicks, William W.; and Keller, John H., 4,340,461, Cl. 204-298.000.
Paysen, Kenneth E.; and Petrovick, James M., 4,340,855, Cl. 324-72.000.
Voegeli, Otto, 4,340,942, Cl. 365-16.000.

International Coatings Co., Inc.: *See*—
Wells, Herbert A.; Hochner, Walter L.; and Matacek, George F., 4,340,632, Cl. 428-90.000.

International Environmental, Inc.: *See*—
Adams, V. Dean; and Reynolds, James H., 4,340,489, Cl. 210-718.000.

International Port-A-Call: *See*—
McQueen, Wayne F.; Schansman, Raymond R.; Hurd, William A.; Fischer, Joerg; and Dunn, Billy W., 4,340,784, Cl. 179-6.120.

International Standard Electric Corporation: *See*—
Drake, Cyril F.; and Shreeve, Francesca M., 4,340,693, Cl. 525-337.000.

International Telephone and Telegraph Corporation: *See*—
McGeary, Peter G., 4,340,269, Cl. 339-90.00C.

Internationale Octrooi Maatschappij "Octropa" B.V.: *See*—
De Jongh, Rudolph O/; Visser, Adrianus; and Van der Linde, Robert, 4,340,698, Cl. 525-438.000.

InterNorth, Inc.: *See*—
Dickey, Leland C.; and Tayter, Maya, 4,339,882, Cl. 34-9.000.

Interstab Chemicals Inc.: *See*—
Housel, David S., 4,340,514, Cl. 524-77.000.

INTERx Research Corporation: *See*—
Bodor, Nicholas S.; Sloan, Kenneth B.; and Pogany, Stefano A., 4,340,603, Cl. 424-301.000.

Ion Tech Limited: *See*—
Franks, Joseph, 4,340,815, Cl. 250-307.000.

Irick, Gether, Jr.: *See*—
Zannucci, Joseph S.; Sublett, Bobby J.; and Irick, Gether, Jr., 4,340,718, Cl. 528-128.000.

Isabel, John R. Golf club bags. 4,340,102, Cl. 150-1.50R.

Isaka, Yoshiharu, to Yamaha Hatsudoki Kabushiki Kaisha. Internal combustion engine with combined transmission case and crankshaft case, and intermediate shaft. 4,339,964, Cl. 74-606.00R.

Ise, Yoji, to Myotoku Ltd. Flow regulating valve and fluid feeding apparatus using same. 4,340,234, Cl. 279-3.000.

Isely, Alain: *See*—
Askman, Lars; Wetzel, Pierre; and Isely, Alain, 4,340,612, Cl. 426-276.000.
Ishibashi, Kazuhisa; and Omi, Hidehiko, to Toyo Seikan Kaisha, Ltd. Continuous heating apparatus for metal caps. 4,340,801, Cl. 219-10.710.
Ishida, Masamitsu: *See*—
Kato, Hisatoyo; Ishida, Masamitsu; and Matsumoto, Seiji, 4,340,911, Cl. 358-280.000.
Ishidoshiro, Hiroshi: *See*—
Sando, Yoshikazu; Ishidoshiro, Hiroshi; and Minakata, Matsuo, 4,339,856, Cl. 28-155.000.
Ishihara, Takao: *See*—
Aiba, Takaaki; Kaji, Hisatsugu; Endo, Tomizo; and Ishihara, Takao, 4,340,464, Cl. 208-40.000.
Ishihara, Toshio: *See*—
Taira, Tadaaki; Ishihara, Toshio; Itoshima, Hiromichi; Mihara, Yutaka; and Kogawa, Takashi, 4,339,941, Cl. 72-412.000.
Ishikawa, Masaru: *See*—
Honda, Akira; Ishikawa, Masaru; Mizuoka, Seishi; and Ono, Katsunori, 4,340,110, Cl. 164-435.000.
Ishimaru, Naoki: *See*—
Sugawara, Kohichi; Matsui, Isamu; Ishimaru, Naoki; and Ikegami, Teruhiro, 4,340,577, Cl. 423-450.000.
Ishioka, Tetsuo: *See*—
Yamaue, Yasunobu; and Ishioka, Tetsuo, 4,340,128, Cl. 180-900.000.
Ishizuka, Hiroyuki: *See*—
Takahashi, Atsushi; Muratsubaki, Yoshiharu; and Ishizuka, Hiroyuki, 4,340,422, Cl. 75-58.000.
Isobe, Takashi, to Canon Kabushiki Kaisha. Drive connection mechanism for adjustable lens system. 4,340,280, Cl. 350-429.000.
Istel, Erich: *See*—
Nonn, Konrad; Laser, Joachim; Wolf, Karlheinz; Hornle, Reinhold; and Istel, Erich, 4,340,389, Cl. 8-620.000.
Italtel Societa Italiana Telecomunicazioni S.p.A.: *See*—
Sbuelz, Anes, 4,340,788, Cl. 179-175.30R.
Itaya, Yoshio: *See*—
Akiba, Shigeyuki; Suematsu, Yasuharu; Arai, Shigehisa; Kodaira, Masanobu; Itaya, Yoshio; Iga, Kenichi; Ota, Chuichi; Yamamoto, Takaya; and Sakai, Kazuo, 4,340,966, Cl. 372-45.000.
Itoshima, Hiromichi: *See*—
Taira, Tadaaki; Ishihara, Toshio; Itoshima, Hiromichi; Mihara, Yutaka; and Kogawa, Takashi, 4,339,941, Cl. 72-412.000.
ITT Industries, Inc.: *See*—
Belart, Juan, 4,340,257, Cl. 303-114.000.
Schanz, Johannes, 4,339,921, Cl. 60-547.00R.
Ivantsov, Vladimir Y.: *See*—
Romashov, Alexandr A.; Levinsky, Gennady E.; Ivantsov, Vladimir Y.; Astakhov, Igor A.; and Kuznetsov, Vladimir A., 4,340,163, Cl. 228-19.000.
Iwahashi, Hiroshi: *See*—
Asano, Masamichi; and Iwahashi, Hiroshi, 4,340,943, Cl. 365-194.000.
Iwai, Yasuyuki: *See*—
Tamura, Takashi; and Iwai, Yasuyuki, 4,340,297, Cl. 355-50.000.
Iwamura, Soichi; Nishida, Yasuaki; Yamato, Toshimi; Sawazaki, Norikazu; Nishi, Yoshio; Watanabe, Masaharu; and Endo, Norio, to Nippon Hoso Kyokai; and Tokyo Shibaura Denki Kabushiki Kaisha. Information recording medium and recording and reproducing system using the same. 4,340,953, Cl. 369-126.000.
Iwasaki, Shinichiro, to Aisin Seiki Company, Ltd. Position sensor. 4,339,953, Cl. 73-654.000.
Iwasaki, Shinichiro, to Aisin Seiki Company, Ltd. Pressure sensor. 4,339,955, Cl. 73-728.000.
Iwasaki, Shinichiro, to Aisin Seiki Company, Ltd. Pressure sensor. 4,339,956, Cl. 73-728.000.
Iwata, Yasuhiro; Usami, Kiyoshi; Nabeta, Teiichi; Naganoma, Masanori; and Kojima, Yasuhumi, to Nippondenso Co., Ltd. Electric control method and apparatus for automobile air conditioning system. 4,340,113, Cl. 165-25.000.
IWK Regler und Kompensatoren GmbH: *See*—
Freiherr von Arnim, Dietlof; and Dahn, Rolf, 4,340,089, Cl. 138-121.000.
Izumi, Kaichi, to Kao Soap Company Limited. Apparatus for supervising and controlling the output power of induction motors. 4,340,847, Cl. 318-490.000.
J. B. Foote Foundry Co., The: *See*—
Hauser, Hans; and Clayborne, William J., 4,339,965, Cl. 74-607.000.
Reiss, Garry K., 4,340,134, Cl. 192-67.00R.
J.F.C. Investments, Inc.: *See*—
Cerna, Juan F., 4,340,132, Cl. 190-18.00A.
J. M. Huber Corporation: *See*—
Wason, Satish K., 4,340,583, Cl. 424-52.000.
Wason, Satish K., 4,340,584, Cl. 424-52.000.
J. P. Tool, Ltd.: *See*—
Proulx, Sylvester E.; and Beneteau, Stanley A., 4,340,328, Cl. 408-239.00A.
J. Stoddard & Sons Limited: *See*—
Stoddard, James R., 4,340,096, Cl. 141-1.000.
J. T. Baker Chemical Co.: *See*—
Gray, Gary M.; Schwartzkopf, George, Jr.; and J. T. Baker Chemical Co., 4,340,765, Cl. 71-123.000.
Jack, Stanton E.; and Dark, Robert O., to Alcan Research & Development Limited. Retro-reflecting sheet material. 4,340,273, Cl. 350-105.000.
Jaffe, Fern; and Blacker, Rose. Sleeping sack. 4,339,835, Cl. 5-413.000.
Jager, Ernst H., to Messerschmitt-Bolkow-Blohm GmbH. Method for destroying structures such as concrete walls. 4,339,995, Cl. 102-310.000.
Jahn, Gerhard. Binding system. 4,340,316, Cl. 402-68.000.
Janome Sewing Machine Co. Ltd.: *See*—
Hanyu, Susumu; and Takenoya, Hideaki, 4,340,002, Cl. 112-158.00E.
Hanyu, Susumu; Hara, Kazumasa; and Koike, Mikio, 4,340,003, Cl. 112-191.000.
Jansen, Franz: *See*—
Voisin, Guy; Jansen, Franz; and Gros, Pierre, 4,340,535, Cl. 260-112.00B.
Jansen, Herbert, to GRUNDIG E.M.V. Elektro-Mechanische Versuchsanstalt Max Grundig. Pivoted magnetic head mount with adjustable limit. 4,340,918, Cl. 360-109.000.
Janssen Pharmaceutica, N.V.: *See*—
Sipido, Victor, 4,340,738, Cl. 548-151.000.
Japan Synthetic Rubber Co., Ltd.: *See*—
Takeuchi, Yasumasa; Obata, Yutaka; Ohshima, Noboru; Shibata, Tooru; and Nakako, Kaoru, 4,340,685, Cl. 525-247.000.
Jatsch, Werner: *See*—
Brunner, Anton; and Jatsch, Werner, 4,340,892, Cl. 343-768.000.
Jensen, Gerald A., to Pako Corporation. Print stacking apparatus with print deflecting flap. 4,340,213, Cl. 271-219.000.
Jeram, Edward M.; and Smith, Alfred H., Jr., to General Electric Company. Addition curing silicone compositions. 4,340,709, Cl. 528-15.000.
Jessop, Thomas C.: *See*—
Collins, Richard A.; Tersteeg, Glenn E.; and Jessop, Thomas C., 4,340,390, Cl. 23-230.00B.
Jin, Sungho; and Tiefel, Thomas H., to Bell Telephone Laboratories, Incorporated. High remanence Fe-Mo-Ni alloys for magnetically actuated devices. 4,340,434, Cl. 148-31.550.
Jin, Sungho; and Tiefel, Thomas H., to Bell Telephone Laboratories, Incorporated. Isotropic and nearly isotropic permanent magnet alloys. 4,340,435, Cl. 148-31.570.
Jinbo, Susumu; Kohno, Shoichi; and Onishi, Masatoshi, to Hodogaya Chemical Co., Ltd. Process for producing 4,4'-dihydroxybiphenyl. 4,340,768, Cl. 568-730.000.
Jirka, Howard F.: *See*—
den Toonder, Pieter; Seltenrijch, Johannes C.; Stubbs, Graham S.; Fondse, Pieter J.; and Jirka, Howard F., 4,340,906, Cl. 358-124.000.
Jobling, Lancelot A.; Sabec, Charles J.; and Stump, Ronald C., to Towmotor Corporation. Flexible muffler mounting. 4,339,919, Cl. 60-322.000.
Jockers, Kurt: *See*—
Rapp, Guenther; Jockers, Kurt; and Thomas, Erwin, 4,340,575, Cl. 423-387.000.
Joffrion, Ralph K., to Copolymer Rubber & Chemical Corporation. Method of grafting EPM and EPDM polymers. 4,340,689, Cl. 525-263.000.
Johansen, Jack T., to De Forenede Bryggerier A/S. Process for recovering Cu,Zn-superoxide dismutase from yeast. 4,340,675, Cl. 435-189.000.
Johnson, Alan W.; and Hassanali-Walji, Ahmed. Butenolide herbicides and process for their preparation. 4,340,732, Cl. 542-426.000.
Johnson, Glenn W., Jr.; and Heenan, Sidney A., to Amerace Corporation. Pavement marker. 4,340,319, Cl. 404-16.000.
Johnson, Keith M., to Medtronic, Inc. Dynamic annulus heart valve and reconstruction ring. 4,339,831, Cl. 3-1.500.
Johnson, Larry K., to Lawrence Brothers, Inc. Latch assembly. 4,340,246, Cl. 292-113.000.
Johnson Matthey, Inc.: *See*—
Dolan, Calvin M., 4,340,505, Cl. 252-466.0PT.
Johnson, Michael R., to Pfizer Inc. 9-Hydroxyoctahydrobenzo[C-]quinolines and intermediates therefor. 4,340,737, Cl. 546-108.000.
Johnson, Paulette: *See*—
Martin, Jerry R.; Tadanier, John S.; and Johnson, Paulette, 4,340,727, Cl. 536-16.100.
Johnson, Richard M. Vegetation clearing devices. 4,339,908, Cl. 56-503.000.
Johnson, Ted W.; Hamilton, William R.; and Hamilton, Archie I., to Hamilton Bros. Mfg. Co.; and Johnson, Ted W., a part interest. Speed change device. 4,340,377, Cl. 474-81.000.
Johnston, Ian R. W. Converging flow filter. 4,340,474, Cl. 210-199.000.
Jones, Wayne W.; and Stone, Roger. Distortion measurement system. 4,340,854, Cl. 324-57.0DE.
Jonner, Wolf-Dieter: *See*—
Anlauf, Jurgen; and Jonner, Wolf-Dieter, 4,340,935, Cl. 364-426.000.
Jordan, Otis D., to Sun-Ohio Inc. System and apparatus for the continuous destruction and removal of polychlorinated biphenyls from fluids. 4,340,471, Cl. 210-101.000.
Joslin Diabetes Center, Inc.: *See*—
Lerner, Harry; Giner, Jose D.; and Soeldner, John S., 4,340,458, Cl. 204-195.00R.
Joy Manufacturing Company: *See*—
Bailey, Edward A.; and LeBlanc, Louis H., Jr., 4,340,121, Cl. 173-134.000.
Juergens, Stanley G.: *See*—
Hart, John R.; Juergens, Stanley G.; and McCormack, William E., 4,340,442, Cl. 162-146.000.
Junkermann, Helmut; and Kruger, Horst, to Deutsche Gold- und Silber-Scheideanstalt vormals Roessler. Process for the detoxification of

waste water containing phenol, phenol derivative or phenol and formaldehyde. 4,340,490, Cl. 210-759.000.
Junkosha Co., Ltd.: *See*—
Nomi, Haruo, 4,340,384, Cl. 8-495.000.
Justus, Edgar J., to Beloit Corporation. High speed size press. 4,340,623, Cl. 427-361.000.
Kabushiki Kaisha Mikuni Seisakusho: *See*—
Moteki, Tsutomu; Yamaguchi, Kunihiro; and Nakajima, Yoshikazu, 4,340,513, Cl. 524-13.000.
Kabushiki Kaisha Morita Seisakusho: *See*—
Furuichi, Shuhei; and Suzuki, Masakazu, 4,340,971, Cl. 378-40.000.
Kaiser Steel Corporation: *See*—
Abascal, David J., 4,340,209, Cl. 266-266.000.
Kaiserswerth, Rudolf: *See*—
Sprick, Erhard; and Kaiserswerth, Rudolf, 4,340,964, Cl. 371-38.000.
Kaji, Hisatsugu: *See*—
Aiba, Takaaki; Kaji, Hisatsugu; Endo, Tomizo; and Ishihara, Takao, 4,340,464, Cl. 208-40.000.
Kajima Corporation: *See*—
Shiraishi, Hiroshi; and Moriguchi, Shigeru, 4,339,861, Cl. 29-416.000.
Kalal, Jaroslav: *See*—
Lukas, Jaromir; Kalal, Jaroslav; and Svec, Frantisek, 4,340,483, Cl. 210-502.000.
Kamiya, Soji: *See*—
Nara, Tamotsu; and Kamiya, Soji, 4,340,649, Cl. 428-653.000.
Kamman, Gordon W.: *See*—
McLean, Ronald L.; and Kamman, Gordon W., 4,339,862, Cl. 29-424.000.
Kanamaru, Hisanobu; Okabe, Moisei; Tatsumi, Hideo; Tohkairin, Akira; and Kasama, Ryoji, to Hitachi, Ltd. Method of making rotor of rotary machines. 4,339,873, Cl. 29-598.000.
Kanayama, Katsumi: *See*—
Motoyama, Kazuyasu; Nakao, Toshihiro; Kanayama, Katsumi; and Furuta, Kenzi, 4,340,951, Cl. 369-53.000.
Kanei, Yutaka. High-speed ship. 4,340,004, Cl. 114-67.00A.
Kangyo Denkikiki Kabushiki Kaisha: *See*—
Sudo, Michio; and Miura, Hitoshi, 4,340,833, Cl. 310-268.000.
Kanno, Fumio; and Nakajima, Fumio, to Citizen Watch Company Limited. Electronic timepiece. 4,340,946, Cl. 368-76.000.
Kansas State University Research Foundation: *See*—
Parke, Patrick P.; Bauer, Brady G.; Meitl, Kenneth G.; Thompson, Wayne L.; and Voegeli, Thomas J., 4,340,182, Cl. 239-680.000.
Kao Soap Company Limited: *See*—
Izumi, Kaichi, 4,340,847, Cl. 318-490.000.
Kaplan, Isaac R.: *See*—
Demaison, Gerard J.; and Kaplan, Isaac R., 4,340,391, Cl. 23-230.0EP.
Kapp, Dennis R. Parallel-ruling straightedge. 4,339,881, Cl. 33-444.000.
Kasama, Ryoji: *See*—
Kanamaru, Hisanobu; Okabe, Moisei; Tatsumi, Hideo; Tohkairin, Akira; and Kasama, Ryoji, 4,339,873, Cl. 29-598.000.
Kataoka, Yoshiro: *See*—
Sakaue, Takashi; Hatta, Koichi; Fukusaki, Megumi; and Kataoka, Yoshiro, 4,340,375, Cl. 434-201.000.
Katayama, Shitomi: *See*—
Ohno, Akira; Katayama, Shitomi; Nomura, Suguru; Senaha, Susumu; Kyo, Suizo; Shimomura, Susumu; Akagami, Akira; and Imai, Hiroshi, 4,340,646, Cl. 428-429.000.
Kater, John A. R. Ion selective electrodes. 4,340,457, Cl. 204-195.00R.
Kato, Hisatoyo; Ishida, Masamitsu; and Matsumoto, Seiji, to Fuji Photo Film Co., Ltd. Image gradation processing method and apparatus for mammogram copying system. 4,340,911, Cl. 358-280.000.
Kato, Toshikazu, to Olympus Optical Co., Ltd. Head adjustment mechanism. 4,340,919, Cl. 360-109.000.
Kato, Yoshitaka; Maesaka, Kiyotomi; Matsui, Seiichi; and Iizuka, Yoshitoku, to Honda Giken Kogyo Kabushiki Kaisha. Starting decompression device for a four cycle engine. 4,340,017, Cl. 123-182.000.
Katoh, Koshi; and Shimizu, Takayoshi, to Daido Tokushuko Kabushiki Kaisha. Ferritic stainless steel having excellent machinability and local corrosion resistance. 4,340,424, Cl. 75-126.00E.
Kaufman, Joseph, to Becton, Dickinson and Company. Multiple sample needle with vein entry indicator. 4,340,068, Cl. 128-766.000.
Kaufmann, Meinolph; and Kmetz, Allan R., to BBC Brown, Boveri, & Company, Limited. Liquid crystal display and method of making. 4,340,277, Cl. 350-347.00E.
Kawabata, Kenji: *See*—
Yamaguchi, Masumi; Kawabata, Kenji; and Kumagai, Yoshimi, 4,340,796, Cl. 219-10.55B.
Kawamatsu, Yutaka; and Fujita, Takeshi, to Takeda Chemical Industries, Ltd. Thiazolidine derivatives. 4,340,605, Cl. 424-263.000.
Kawasaki Jukogyo Kabushiki Kaisha: *See*—
Fujikawa, Tetsuzo, 4,340,123, Cl. 180-54.00A.
Kawneer Company, Inc.: *See*—
Hubbard, S. Eugene, 4,339,901, Cl. 52-202.000.
Kayanuma, Kanji: *See*—
Hirata, Atsumi; and Kayanuma, Kanji, 4,340,907, Cl. 358-128.600.
Keech, Andrew E.: *See*—
Smith, Bryan; Keech, Andrew E.; and Dawson, Patricia A., 4,340,079, Cl. 137-207.000.
Keeney, Allen J., to Ford Motor Company. Compounding mica and resin with heat sensitive additives. 4,340,516, Cl. 523-216.000.
Kees, George, Jr.; and Shahbabian, Set, to Mayfield Education and Research Fund. Aneurysm clip. 4,340,061, Cl. 128-325.000.
Kegel, Richard L.; Pugh, Burton J.; and Steury, Thomas R., to Sargent Mfg. Co., Inc. Corner system addition for a center pivot irrigation system. 4,340,183, Cl. 239-710.000.
Keitel, John. Roll-holding means for a corn-husking bed. 4,340,070, Cl. 130-5.00D.
Kel-Co Industries, Inc.: *See*—
Kelly, Thomas J., Jr., 4,340,029, Cl. 126-237.000.
Kelleher, Kevin C., to RCA Corporation. Processor controlled video disc servo system. 4,340,949, Cl. 369-33.000.
Keller, John H.: *See*—
Hendricks, Charles J.; Hicks, William W.; and Keller, John H., 4,340,461, Cl. 204-298.000.
Kelly, Thomas J., Jr., to Kel-Co Industries, Inc. Portable soldering iron heater system. 4,340,029, Cl. 126-237.000.
Kempe, Uwe: *See*—
Dockner, Toni; Kempe, Uwe; Krug, Herbert; Magnussen, Peter; and Praetorius, Werner, 4,340,745, Cl. 548-347.000.
Schwarz, Helmut; Dockner, Toni; Kempe, Uwe; Krug, Herbert; Praetorius, Werner; Magnussen, Peter; Gallei, Ewald; and Fehr, Erich, 4,340,744, Cl. 548-346.000.
Kemper, Reinhard: *See*—
Lotsch, Wolfgang; and Kemper, Reinhard, 4,340,735, Cl. 544-300.000.
Kempermann, Theo: *See*—
Schubart, Rudiger; Eholzer, Ulrich; Kempermann, Theo; and Roos, Ernst, 4,340,695, Cl. 525-350.000.
Kempter, Fritz E.; and Schupp, Eberhard, to BASF Aktiengesellschaft. Polyadduct/polycondensate containing basic nitrogen groups, and its use. 4,340,455, Cl. 204-181.00C.
Kempter, Fritz E.: *See*—
Schupp, Eberhard; Kempter, Fritz E.; and Gulbins, Erich, 4,340,714, Cl. 528-99.000.
Kennametal Inc.: *See*—
McCreery, James F., 4,340,324, Cl. 407-114.000.
Kent, Alan W.: *See*—
Crawford, Ronald H.; and Kent, Alan W., 4,340,085, Cl. 137-514.000.
Kerkenbush, Darle L.; and Blaszcak, Peter P., Jr., to Wham-O Mfg. Co. Game ball. 4,340,222, Cl. 273-61.00R.
Kernforschungsanlage Julich GmbH: *See*—
Schiffer, Peter; Heinrichs, Ernst; and Helten, Manfred, 4,340,077, Cl. 137-68.00A.
Khan, Abdus S.: *See*—
United States of America, National Aeronautics and Space Administration; Barrett, Charles A.; Lowell, Carl E.; and Khan, Abdus S., 4,340,425, Cl. 148-428.000.
Kidd, Ralph E.: *See*—
Fio Rito, William M.; and Kidd, Ralph E., 4,339,999, Cl. 110-226.000.
Kierstead, Richard W.: *See*—
Guthrie, Robert W.; Kierstead, Richard W.; Mennona, Francis A.; and Sullivan, Ann C., 4,340,754, Cl. 562-584.000.
Kik, Leendert A.; Schuurink, Pieter H. J.; and De Vries, Marinus J., to AKZO NV. Process for applying a coating to that part of a structure in a marine environment which projects above the surface of water. 4,340,622, Cl. 427-299.000.
Kikuchi, Masatsugu, to Xerox Corporation. Degassing ink supply apparatus for ink jet printer. 4,340,895, Cl. 346-140.00R.
Kim, Chisu: *See*—
Husimi, Kazuo; and Kim, Chisu, 4,340,899, Cl. 357-29.000.
Kim, George A.: *See*—
Chio, Shiu-Shin; and Kim, George A., 4,340,954, Cl. 369-173.000.
Kim, Heung T., to B. F. Goodrich Company, The. Apparatus for processing elastomeric materials. 4,340,342, Cl. 425-72.00R.
Kimberly-Clark Corporation: *See*—
Appel, David W.; and Morman, Michael T., 4,340,563, Cl. 264-518.000.
Kimura, Morihiro: *See*—
Hoedl, Fritz; Kimura, Morihiro; and Yasuda, Yoshio, 4,340,360, Cl. 432-119.000.
King, John L., Jr.: *See*—
Rugh, Clyde J.; and King, John L., Jr., 4,340,262, Cl. 308-187.000.
King, Paul M.; and Spector, George. Christmas tree decoration. 4,340,842, Cl. 315-186.000.
Kinsey, Cliff J.: *See*—
Hibbard, Neil K.; Kinsey, Cliff J.; and Belongia, Clyde G., 4,340,039, Cl. 128-66.000.
Kircher, Morton S., to Olin Corporation. Internal downcomer for electrolytic recirculation. 4,340,460, Cl. 204-258.000.
Kirchoff, Francis D., to Alco Electronic Products, Inc. Sub-miniature, two position double pole switch. 4,340,793, Cl. 200-268.000.
Kirchweger, Karl, to Hans List. Ventilation blower for a noise-suppressing encapsulated internal combustion engine. 4,340,014, Cl. 123-41.630.
Kirk, J. David, to Outboard Marine Corporation. Internal combustion engine having a wet-type cylinder liner and process for manufacturing same. 4,340,018, Cl. 123-193.00C.
Kirkpatrick, Jesse C.: *See*—
Hauk, Ernest D.; and Kirkpatrick, Jesse C., 4,340,120, Cl. 173-131.000.
Kirts, Richard E., to United States of America, Navy. Control system for solar-assisted heat pump system. 4,339,930, Cl. 62-235.100.
KIS France: *See*—
Crasnianski, Serge; and Soriano, Louis, 4,339,994, Cl. 101-4.000.

Kishimoto, Shoji: *See*—
Furukawa, Yoshiyasu; Kishimoto, Shoji; and Nishikawa, Kohei, 4,340,598, Cl. 424-273.00R.
Kiss, Joseph: *See*—
D'Souza, Richard; and Kiss, Joseph, 4,340,729, Cl. 536-23.000.
Kitajima, Masao; Arai, Fuminori; and Kondo, Asaji, to Fuji Photo Film Co., Ltd. Hematocrit value determining element. 4,340,565, Cl. 422-56.000.
Kito, Michimasa; and Nomura, Toshiyuki, to Rinnai Kabushiki Kaisha Rinnai Corporation. Infrared radiation gas burner plate. 4,340,357, Cl. 431-328.000.
Kiuchi, Hideo: *See*—
Ninomiya, Masakazu; Kiuchi, Hideo; Suzuki, Atsushi; and Kobayashi, Nobuyuki, 4,340,022, Cl. 123-453.000.
Kiuchi, Masashi; Takasu, Yoshio; Fukumoto, Hiroshi; Hino, Takashi; Uchiyama, Masaki; and Mitsuhashi, Yasuo, to Canon Kabushiki Kaisha. Toner for development having crosslinked polymers. 4,340,660, Cl. 430-106.600.
Klahr, Erhard; Hettche, Albert; Trieselt, Wolfgang; Stoeckigt, Dieter; and Trapp, Horst, to BASF Aktiengesellschaft. Dishwashing agents and cleaning agents containing oxybutylated higher alcohol/ethylene oxide adducts as low-foaming surfactants. 4,340,766, Cl. 568-625.000.
Klaus, Benjamin, Jr.; and MacKenzie, Gordon C., to Raytheon Company. Rate gyroscope having an optical sensor system. 4,339,959, Cl. 74-5.60A.
Klein, Paul E.; and Anderson, Roland M., to Modcom, Inc. Orthodontic rotation wedge with twist-preventing mounds. 4,340,363, Cl. 433-18.000.
Klenk, William A.; Atkinson, Albert B.; and Bobbitt, Donald E., to A. B. Chance Company. Adjustable connector for coupling tower leg to foundation support anchor. 4,339,899, Cl. 52-157.000.
Kling-Tecs, Inc.: *See*—
Roberts, John S., 4,340,552, Cl. 264-39.000.
Kloeckner-Werke AG: *See*—
Grisar, Ulrich; and Berstermann, Wilhelm, 4,340,303, Cl. 356-313.000.
Kloster, Kenneth D. Lead screw threading assembly. 4,339,836, Cl. 10-123.00P.
Kluger, Edward W., to Milliken Research Corporation. Nitrogen-containing compounds. 4,340,717, Cl. 528-111.000.
Kmetz, Allan R.: *See*—
Kaufmann, Meinolph; and Kmetz, Allan R., 4,340,277, Cl. 350-347.00E.
Knapp, Philip B. Lawn and garden feeding apparatus. 4,340,179, Cl. 239-310.000.
Kniel, Roger: *See*—
Baumann, Eduard; and Kniel, Roger, 4,340,880, Cl. 340-310.00R.
Knight, Eric M.; and Greene, Edward S., to Ford Motor Company. Method and apparatus for coordinate dimming of electronic displays. 4,340,889, Cl. 340-793.000.
Knights, Brooks and Partners Limited: *See*—
Knights, Robert E., 4,339,839, Cl. 15-250.040.
Knights, Robert E., to Knights, Brooks and Partners Limited. Windscreen wipers. 4,339,839, Cl. 15-250.040.
Knopf, Robert J., to Union Carbide Corporation. (N-Substituted carbamoyloxy) alkanoyloxyalkyl acrylate esters. 4,340,497, Cl. 252-188.30R.
Knotter, David G.: *See*—
Dale, John D.; and Knotter, David G., 4,340,095, Cl. 141-1.000.
Knudsen, James G.; and Brindak, Nicholas J., to Drew Chemical Corporation. Process and apparatus for testing fluids for fouling. 4,339,945, Cl. 73-61.200.
Kobale, Manfred; Littwin, Burkhard; and Wengert, Rolf, to Siemens Aktiengesellschaft. Control plate for a gas discharge display device. 4,340,838, Cl. 313-348.000.
Kobayashi, Nobuyuki: *See*—
Ninomiya, Masakazu; Kiuchi, Hideo; Suzuki, Atsushi; and Kobayashi, Nobuyuki, 4,340,022, Cl. 123-453.000.
Koch, Carl; Meyer, Rolf; and Zehnder, Richard, to Koch, Carl. Photographic apparatus for using roll films. 4,340,292, Cl. 354-275.000.
Koch, George R., to Lam Research Corporation. Adjustable electrode plasma processing chamber. 4,340,462, Cl. 204-298.000.
Koda, Akihide; Hori, Mikio; Yasumoto, Mitsugi; Yamawaki, Ichiro; Yamada, Yuji; and Takikawa, Katsuo, to Taiho Pharmaceutical Company Limited. Sulfonium compounds. 4,340,543, Cl. 549-414.000.
Kodaira, Masanobu: *See*—
Akiba, Shigeyuki; Suematsu, Yasuharu; Arai, Shigehisa; Kodaira, Masanobu; Itaya, Yoshio; Iga, Kenichi; Ota, Chuichi; Yamamoto, Takaya; and Sakai, Kazuo, 4,340,966, Cl. 372-45.000.
Koehler, David L.: *See*—
Stephenson, Dwight B.; and Koehler, David L., 4,339,987, Cl. 91-426.000.
Koenig, Bruce E.; and Niswander, Thomas E., to Koenig, Bruce E.; and Niswander, Thomas E., a part interest. Dry seeding mulch and process of making same. 4,339,890, Cl. 47-9.000.
Kogawa, Takashi: *See*—
Taira, Tadaaki; Ishihara, Toshio; Itoshima, Hiromichi; Mihara, Yutaka; and Kogawa, Takashi, 4,339,941, Cl. 72-412.000.
Kohno, Shoichi: *See*—
Jinbo, Susumu; Kohno, Shoichi; and Onishi, Masatoshi, 4,340,768, Cl. 568-730.000.
Koike, Mikio: *See*—
Hanyu, Susumu; Hara, Kazumasa; and Koike, Mikio, 4,340,003, Cl. 112-191.000.
Kojima, Yasuhumi: *See*—
Iwata, Yasuhiro; Usami, Kiyoshi; Nabeta, Teiichi; Naganoma, Masanori; and Kojima, Yasuhumi, 4,340,113, Cl. 165-25.000.
Kojo, Hidehiko: *See*—
Hata, Naoaki; Kojo, Hidehiko; and Akimoto, Koji, 4,340,716, Cl. 528-100.000.
Kokusai Denshin Denwa Kabushiki Kaisha: *See*—
Akiba, Shigeyuki; Suematsu, Yasuharu; Arai, Shigehisa; Kodaira, Masanobu; Itaya, Yoshio; Iga, Kenichi; Ota, Chuichi; Yamamoto, Takaya; and Sakai, Kazuo, 4,340,966, Cl. 372-45.000.
Kolomayets, George: *See*—
Dennis, James T.; and Kolomayets, George, 4,340,958, Cl. 369-267.000.
Komatsu, Yasuhiro: *See*—
Tahara, Yoshiyuki; Koyama, Hiroyasu; Komatsu, Yasuhiro; Kubota, Reiko; and Takahashi, Toshihiro, 4,340,760, Cl. 564-462.000.
Kompelien, Arlon D., to Honeywell Inc. Low voltage power supply. 4,340,173, Cl. 236-46.00R.
Kondo, Asaji: *See*—
Kitajima, Masao; Arai, Fuminori; and Kondo, Asaji, 4,340,565, Cl. 422-56.000.
Kondo, Eiji; Mitsugi, Takashi; Fujiwara, Tamio; and Muneyuki, Ryonosuke, to Shionogi & Co., Ltd. Enzymatic synthesis of β-lactam antibacterials. 4,340,672, Cl. 435-45.000.
Konig, Klaus: *See*—
Reichmann, Wolfgang; Konig, Klaus; and Schonfelder, Manfred, 4,340,712, Cl. 528-45.000.
Konikoff, Robert S. K.; Rudolph, Richard G.; and Gill, George H., to Sico Incorporated. Illuminated portable floor. 4,340,929, Cl. 362-153.000.
Koninklijke Emballage Industrie Van Leer B.V.: *See*—
Brugmans, Johannes T., 4,340,638, Cl. 428-323.000.
Konishiroku Photo Industry Co., Ltd.: *See*—
Nakamura, Hiroya, 4,340,295, Cl. 355-14.00R.
Tamura, Takashi; and Iwai, Yasuyuki, 4,340,297, Cl. 355-50.000.
Koob, Friedrich; and Lang, Gusztav, to Hilti Aktiengesellschaft. Two-component material. 4,340,637, Cl. 428-220.000.
Kopaska, Arnold F.; and Kopaska, Larry A. Endless belt changing in a rotary crop baler. 4,339,907, Cl. 56-341.000.
Kopaska, Larry A.: *See*—
Kopaska, Arnold F.; and Kopaska, Larry A., 4,339,907, Cl. 56-341.000.
Kopse, Odon: *See*—
Stumpp, Gerhard; Eblen, Ewald; Hofmann, Karl; Amaya, Nestor R.; Schlagenhauf, Josef; and Kopse, Odon, 4,340,181, Cl. 239-533.300.
Kosaka, Minoru, to Universal Pioneer Corporation. Video disc player. 4,340,950, Cl. 369-44.000.
Kotera, Nobukazu; Mizumura, Yutaka; and Miyake, Hideo, to Toyo Boseki Kabushiki Kaisha. Polyester resin aqueous dispersion. 4,340,519, Cl. 523-414.000.
Koutonen, Pauli; and Alanco, Lars-Erik, to Oy Wartsila Ab. Roll packaging arrangement. 4,339,904, Cl. 53-137.000.
Kowalski, Xavier, to Monsanto Company. Dyeing of textile materials. 4,340,388, Cl. 8-584.000.
Koyama, Hiroyasu: *See*—
Tahara, Yoshiyuki; Koyama, Hiroyasu; Komatsu, Yasuhiro; Kubota, Reiko; and Takahashi, Toshihiro, 4,340,760, Cl. 564-462.000.
Kozlowski, Alexander: *See*—
Howanietz, Friedrich; and Kozlowski, Alexander, 4,340,510, Cl. 260-8.000.
Kozu, Hideaki: *See*—
Anazawa, Shinzo; and Kozu, Hideaki, 4,340,901, Cl. 357-68.000.
Kraftwerk Union Aktiengesellschaft: *See*—
Fischer, Gustav, 4,340,499, Cl. 252-628.000.
Meyer-Pittroff, Roland; Becker, Bernard; and Finckh, Hermann, 4,340,820, Cl. 290-40.00R.
Kranzler, Ernst: *See*—
Kuhlmann, Gerhard; Kranzler, Ernst; Baer, Gerhard; Ruetsch, Kurt; Ramseier, Hansruedi; Dubach, Heinz; Lang, Martin; Schwartz, Hans; and Aebi, Hans, 4,340,831, Cl. 310-239.000.
Kraus, Charles E., to Excelermatic Inc. Infinitely variable transmission drive arrangement especially for automobiles. 4,339,966, Cl. 74-650.000.
Kraus, Menahem A.; Livni, Avinoam; Nemas, Mara; and Frommer, Moshe A., to A.T. Ramot Plastics Ltd. Membrane separation cell. 4,340,475, Cl. 210-232.000.
Kresge, James S.; and Sakshaug, Eugene C., to General Electric Company. Grading means for high voltage metal enclosed gas insulated surge arresters. 4,340,924, Cl. 361-127.000.
Krieg, Adrian H., to Widder Corporation. Welding nozzle. 4,340,804, Cl. 219-137.410.
Krieger, Willard. Hydraulic torque multiplier wrench. 4,339,968, Cl. 81-57.390.
Kriesel, Douglas C.; and Mehta, Shashi P., to Abbott Laboratories. Erythromycin base tablets. 4,340,582, Cl. 424-35.000.
Kron, Gerald J., to United States of America, Air Force. Upper and lower arm load simulator. 4,340,371, Cl. 434-59.000.
Krug, Herbert: *See*—
Dockner, Toni; Kempe, Uwe; Krug, Herbert; Magnussen, Peter; and Praetorius, Werner, 4,340,745, Cl. 548-347.000.
Schwarz, Helmut; Dockner, Toni; Kempe, Uwe; Krug, Herbert; Praetorius, Werner; Magnussen, Peter; Gallei, Ewald; and Fehr, Erich, 4,340,744, Cl. 548-346.000.

Kruger, Hans-Rudolf, to Schering AG. Process for making 5-mercapto-1,2,3-triazoles. 4,340,742, Cl. 548-255.000.
Kruger, Horst: *See*—
Junkermann, Helmut; and Kruger, Horst, 4,340,490, Cl. 210-759.000.
Krutkov, Anatoly F.: *See*—
Chichkin, Valentin P.; Shpigel, Efraim A.; Gokin, Gennady P.; Matjuschenko, Georgy E.; Kurakov, Nikolai N.; Rabinovich, Grigory B.; Samoilovsky, Sergei A.; Angel, Boris S.; Ilienko, Vladimir S.; Miterev, Vladimir P.; Zemlyanov, Leonid S.; and Krutkov, Anatoly F., 4,339,906, Cl. 56-327.00R.
Kuan, Tiong H., to General Tire & Rubber Company, The. Deflated tire lubricant. 4,340,104, Cl. 152-330.00L.
Kubo, Yasushi: *See*—
Aya, Toshihiko; and Kubo, Yasushi, 4,340,697, Cl. 525-420.000.
Kubota, Ltd.: *See*—
Tanaka, Yoshio; Togawa, Susumu; and Sakoda, Akinori, 4,340,361, Cl. 432-128.000.
Yamaue, Yasunobu; and Ishioka, Tetsuo, 4,340,128, Cl. 180-900.000.
Kubota, Reiko: *See*—
Tahara, Yoshiyuki; Koyama, Hiroyasu; Komatsu, Yasuhiro; Kubota, Reiko; and Takahashi, Toshihiro, 4,340,760, Cl. 564-462.000.
Kuburczik, Gyula: *See*—
Barsi, Karoly; Dorombozi, Laszlo; Forisek, Istvan; Kuburczik, Gyula; and Stuber, Gyorgy, 4,340,254, Cl. 299-11.000.
Kucher, Valery N.; Popenko, Alexandr Z.; Reiman, Georgy R.; Durachenko, Mikhail I.; and Zhovtobrjukh, Grigory D. Car for receiving incandescent coke. 4,340,445, Cl. 202-262.000.
Kuehn, John P., to Audio Dynamics Corporation. Cartridge and headshell assembly. 4,340,957, Cl. 369-256.000.
Kuhlmann, Gerhard; Kranzler, Ernst; Baer, Gerhard; Ruetsch, Kurt; Ramseier, Hansruedi; Dubach, Heinz; Lang, Martin; Schwartz, Hans; and Aebi, Hans, to Robert Bosch GmbH. Brush holder for fractional horsepower motors. 4,340,831, Cl. 310-239.000.
Kuhn, Edgar, to Robert Bosch GmbH. Ripple-compensated voltage regulator, particularly for automotive use. 4,340,849, Cl. 322-28.000.
Kulicke & Soffa Industries, Inc.: *See*—
Bilane, Glenn B.; Rubin, Lawrence M.; Soffa, Albert; and Vilenski, Dan, 4,340,166, Cl. 228-179.000.
Kumagai, Yoshimi: *See*—
Yamaguchi, Masumi; Kawabata, Kenji; and Kumagai, Yoshimi, 4,340,796, Cl. 219-10.55B.
Kumai, Seisaku: *See*—
Yamabe, Masaaki; Kumai, Seisaku; and Munekata, Seiji, 4,340,750, Cl. 560-183.000.
Kumar, Ananda H.: *See*—
Fury, Michael A.; and Kumar, Ananda H., 4,340,618, Cl. 427-96.000.
Kuna, Wayne A.; and Oberth, Christian H., to Marvin Glass & Associates. Microcomputer controlled reaction game. 4,340,223, Cl. 273-1.0GC.
Kunkel, Heinrich: *See*—
Olschewski, Armin; Brandenstein, Manfred; Walter, Lothar; and Kunkel, Heinrich, 4,340,135, Cl. 192-98.000.
Kurakov, Nikolai N.: *See*—
Chichkin, Valentin P.; Shpigel, Efraim A.; Gokin, Gennady P.; Matjuschenko, Georgy E.; Kurakov, Nikolai N.; Rabinovich, Grigory B.; Samoilovsky, Sergei A.; Angel, Boris S.; Ilienko, Vladimir S.; Miterev, Vladimir P.; Zemlyanov, Leonid S.; and Krutkov, Anatoly F., 4,339,906, Cl. 56-327.00R.
Kureha Kagaku Kogyo Kabushiki Kaisha: *See*—
Aiba, Takaaki; Kaji, Hisatsugu; Endo, Tomizo; and Ishihara, Takao, 4,340,464, Cl. 208-40.000.
Kurland, Elaine J. Stirring apparatus. 4,339,992, Cl. 99-348.000.
Kurtz, Leonard D., to BioResearch Inc. Glove molding apparatus. 4,340,348, Cl. 425-270.000.
Kusakabe, Susumu: *See*—
Okamura, Koichi; Kusakabe, Susumu; Yoshida, Masahiro; and Hiraoka, Fumio, 4,339,983, Cl. 41-466.000.
Kuznetsov, Vladimir A.: *See*—
Romashov, Alexandr A.; Levinsky, Gennady E.; Ivantsov, Vladimir Y.; Astakhov, Igor A.; and Kuznetsov, Vladimir A., 4,340,163, Cl. 228-19.000.
Kwikform America, Inc.: *See*—
Payne, George E.; and Meehan, Richard G., 4,340,130, Cl. 182-179.000.
Kyo, Suizo: *See*—
Ohno, Akira; Katayama, Shitomi; Nomura, Suguru; Senaha, Susumu; Kyo, Suizo; Shimomura, Susumu; Akagami, Akira; and Imai, Hiroshi, 4,340,646, Cl. 428-429.000.
Kyowa Chemical Industry Co. Ltd.: *See*—
Miyata, Shigeo, 4,340,493, Cl. 252-18.000.
Kyowa Hakko Kogyo Co., Ltd.: *See*—
Tomita, Fusao; Matsuda, Yuzura; Shirahata, Kunikatsu; Takahashi, Keiichi; Nakano, Hirofumi; Sato, Tomoyasu; Okubo, Shuji; and Nakamura, Nobuo, 4,340,725, Cl. 536-1.100.
Laanio, Verena; Fory, Werner; and Schurter, Rolf, to Ciba-Geigy Corporation. Esters of 1,2-diphenyl-cyclohex-1-ene-4-carboxylic-acid. 4,340,415, Cl. 71-76.000.
Laanio, Verena; Fory, Werner; and Schurter, Rolf, to Ciba-Geigy Corporation. Esters of 1,2-diphenyl-cyclohex-1-ene-4-carboxylic-acid. 4,340,747, Cl. 560-102.000.
Laboratories d'Hygiene et de Dietetique (L.H.D.): *See*—
Grouiller, Herve, 4,340,699, Cl. 525-460.000.
Laflamme, Daniel. Personnel in and out indicator. 4,340,879, Cl. 340-286.00R.
Lagerquist, Rolf E. Luff feeder assembly for grooved jibstay foils. 4,340,005, Cl. 114-105.000.
LaGrone, Charles H., to Garrett Corporation, The. Fuel delivery system and method. 4,339,917, Cl. 60-39.28R.
Lake, William H.: *See*—
Bergman, Rolf S.; and Lake, William H., 4,340,836, Cl. 313-211.000.
Lakshmanan, Pallavoor R.: *See*—
Acharya, Vikramkumar; and Lakshmanan, Pallavoor R., 4,340,687, Cl. 525-193.000.
Lal, Joginder; and Senyek, Michael L., to Goodyear Tire & Rubber Company, The. Cyclic organo carbonate and sulfite coupling agents for living polymers of conjugated dienes. 4,340,690, Cl. 525-271.000.
Lal, Joginder; and Senyek, Michael L., to Goodyear Tire & Rubber Company, The. Linear organo carbonate coupling agents for living polymers of conjugated dienes. 4,340,691, Cl. 525-271.000.
Lal, Joginder; and Senyek, Michael L., to Goodyear Tire & Rubber Company, The. Preparation of interpolymers of alpha-olefins and nonconjugated alpha, omega-polyenes. 4,340,705, Cl. 526-139.000.
Lam, Bing L., to SmithKline Corporation. Process for preparing 3-chloro-6-(2-hydroxyphenyl)-pyridazines. 4,340,733, Cl. 544-224.000.
Lam Research Corporation: *See*—
Koch, George R., 4,340,462, Cl. 204-298.000.
Lambda Energy Products, Inc.: *See*—
Levy, Marco, 4,340,114, Cl. 165-110.000.
Landa, Benzion, to Savin Corporation. Barrelless gun for microballistic printer. 4,340,312, Cl. 400-118.000.
Lang, Gusztav: *See*—
Koob, Friedrich; and Lang, Gusztav, 4,340,637, Cl. 428-220.000.
Lang, Martin: *See*—
Kuhlmann, Gerhard; Kranzler, Ernst; Baer, Gerhard; Ruetsch, Kurt; Ramseier, Hansruedi; Dubach, Heinz; Lang, Martin; Schwartz, Hans; and Aebi, Hans, 4,340,831, Cl. 310-239.000.
Langman, Richard A.; Giovanini, Donald R.; and Letzig, Michael P., to Coors Porcelain Company. Ceramic substrate for fine-line electrical circuitry. 4,340,635, Cl. 428-164.000.
LaPlante, William J.: *See*—
Rizzo, Salvatore P.; and LaPlante, William J., 4,340,164, Cl. 228-57.000.
Lapporte, Seymour J.; and Marquis, David M., to Chevron Research Company. Nitration process for the preparation of 2,6-dialkylaniline. 4,340,758, Cl. 564-409.000.
Large, Donald M.: *See*—
Bankes, Kristen E.; Large, Donald M.; and Reinhard, Fred J., 4,340,323, Cl. 406-83.000.
Larson, Donald J., to Caterpillar Tractor Co. Overspeed control for a vehicle drive system. 4,340,126, Cl. 180-305.000.
Laser, Joachim: *See*—
Nonn, Konrad; Laser, Joachim; Wolf, Karlheinz; Hornle, Reinhold; and Istel, Erich, 4,340,389, Cl. 8-620.000.
Lasseter, Robert H., to General Electric Company. HVDC Power transmission system with metallic return conductor. 4,340,921, Cl. 361-56.000.
Laverick, Robert G.; and Scotland, James M., to BP Chemicals Limited. Process for the recovery of pure acetone from cumene hydroperoxide cleavage reaction product. 4,340,447, Cl. 203-36.000.
Lawrence Brothers, Inc.: *See*—
Johnson, Larry K., 4,340,246, Cl. 292-113.000.
Newlon, Robert L.; and McNinch, Delmar, 4,339,845, Cl. 16-300.000.
Lawrence, Gail W.; and Adolph, Horst G., to United States of America, Navy. Biguanide diperchlorate and process for preparation thereof. 4,340,755, Cl. 564-233.000.
Lawrence, Robert L. Method and apparatus for cutting electrical outlet openings in panels. 4,339,973, Cl. 83-30.000.
Lawson, Dale W. R., to Rohr Industries, Inc. Thrust reverser - cascade type. 4,340,178, Cl. 239-265.310.
Lawson, John E., to Armco Inc. Underwater well installations and handling string joint therefor. 4,340,117, Cl. 166-341.000.
Lebesnerais, Gerard M.: *See*—
Delaporte, Francois X.; Lebesnerais, Gerard M.; and Pantani, Jean-Pierre, 4,340,922, Cl. 361-91.000.
LeBlanc, Louis H., Jr.: *See*—
Bailey, Edward A.; and LeBlanc, Louis H., Jr., 4,340,121, Cl. 173-134.000.
Lee, Henry L., Jr.; and Nolet, Giovanni, to Lee Pharmaceuticals, Inc. No-mix orthodontic adhesive formulations. 4,340,529, Cl. 524-105.000.
Lee, Henry L., Jr.; and Nolet, Giovanni, to Lee Pharmaceuticals, Inc. Adhesive compositions containing alkoxy alkyl acrylates or methacrylates. 4,340,532, Cl. 524-854.000.
Lee Pharmaceuticals, Inc.: *See*—
Lee, Henry L., Jr.; and Nolet, Giovanni, 4,340,529, Cl. 524-105.000.
Lee, Henry L., Jr.; and Nolet, Giovanni, 4,340,532, Cl. 524-854.000.
Lee, Ping I., to Airwick Industries, Inc. Cold water-insoluble polyvinyl alcohol pouch for the controlled release of active ingredients. 4,340,491, Cl. 210-764.000.
Lee, Yan S.: *See*—
Thompson, David L.; McDonald, Ray S.; Lee, Yan S.; and Stein, Marc T., 4,340,062, Cl. 128-419.0PG.
Lee, Yongsik. Fortune cookie machine. 4,339,993, Cl. 99-354.000.
Leeman, John: *See*—
Hildebrand, Karl J.; and Leeman, John, 4,340,845, Cl. 315-327.000.
Leeman Labs, Inc.: *See*—
Hildebrand, Karl J.; and Leeman, John, 4,340,845, Cl. 315-327.000.

Leezer, Max L. Lifting jack. 4,340,205, Cl. 254-98.000.

Lefevre, Joseph D.: *See—*
McIntyre, James A.; Phillips, Robert F.; and Lefevre, Joseph D., 4,340,459, Cl. 204-258.000.

Lefrancois, Jean, to Compagnie Generale des Etablissements Michelin. Inflation valve. 4,340,080, Cl. 137-223.000.

Legue, Norris R.; and Shapiro, Myron, to Synthetic Surfaces, Inc. Adhesive consisting essentially of an isocyanate terminated ricinoleate prepolymer and a chlorinated polyvinyl chloride. 4,340,682, Cl. 524-507.000.

Lehmann, Hans D.: *See—*
Franke, Albrecht; Lenke, Dieter; Gries, Josef; and Lehmann, Hans D., 4,340,595, Cl. 424-244.000.

Lehmann, Karl-Heinz: *See—*
Ali, Ramadan A.; Muller, Heinz; Lehmann, Karl-Heinz; Artzt, Peter; and Schenek, Anton, 4,339,910, Cl. 57-411.000.

Leibinsohn, Saul. Finger-pressure cushioning and indicating device, and syringe including same. 4,340,051, Cl. 128-215.000.

Lemke, Gregory D., to Rexnord Inc. Hydraulic pressure biased linear motion thrust block for hydraulic pumps and motors. 4,340,338, Cl. 418-26.000.

Leodino, Nicholas C. Counting mechanism attachment for a fuel tank. 4,339,950, Cl. 73-310.000.

Lenke, Dieter: *See—*
Franke, Albrecht; Lenke, Dieter; Gries, Josef; and Lehmann, Hans D., 4,340,595, Cl. 424-244.000.

Leonard, Lloyd H. Foldable minicar. 4,340,124, Cl. 180-208.000.

Le Page, Jean-Francois: *See—*
Courty, Philippe; Rabinovich, Georgy L.; Mojaiko, Victor N.; and Le Page, Jean-Francois, 4,340,504, Cl. 252-465.000.

Lermann, Peter: *See—*
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Malinowski, Christopher W.; and Rinderle, Heinz, 4,340,864, Cl. 328-133.000.

Lieb, Folker; Oediger, Hermann; and Streible, Gert, to Bayer Aktiengesellschaft. Phosphono-hydroxy-acetic acid and its salts, their production and their medicinal use. 4,340,599, Cl. 424-212.000.

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Lindstrom, Olle B. Means and procedure for the operation of combustion engine. 4,340,013, Cl. 123-3.000.

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Hamilton, David C.; and Lipton, Kenneth S., 4,340,969, Cl. 372-93.000.

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Kobale, Manfred; Littwin, Burkhard; and Wengert, Rolf, 4,340,838, Cl. 313-348.000.

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Lococo, Michael P. Dental handpiece or the like. 4,340,368, Cl. 433-99.000.

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Barnert, Konrad; and Lohner, Ingolf, 4,340,019, Cl. 123-256.000.

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Gounder, Raj N.; and Geary, John T., 4,340,715, Cl. 528-99.000.

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Heitmann, Arnold M.; and Lord, Richard E., Jr., 4,340,317, Cl. 403-25.000.

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Cretin, Bertrand; and Godefroy, Andre, 4,340,561, Cl. 264-297.000.

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White, Dwain M.; and Loucks, George R., 4,340,696, Cl. 525-390.000.

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Lucas Industries Limited: *See—*
Caldicott, Laurence C.; Cameron, Alastair D.; and Felton, Georgs N., 4,340,020, Cl. 123-374.000.
Farr, Glyn P. R., 4,340,258, Cl. 303-115.000.

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Fugitt, Robert B.; and Luckenbaugh, Raymond W., 4,340,606, Cl. 424-272.000.

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Luthra, Krishan L.; and Spacil, Henry S., to General Electric Company. Method of removing alkali metal contamination from a gaseous stream. 4,340,399, Cl. 55-72.000.

Lyon, Michael R. Process for purifying water. 4,340,487, Cl. 210-705.000.

Maag Gear-Wheel & Machine Co. Ltd.: *See—*
Pivian, Daniel A., 4,339,895, Cl. 51-287.000.

MacDonald, Alan A.; Palloe, Ferenc M.; and Teach, Eugene G., to Stauffer Chemical Company. S-triazine herbicidal antidotes. 4,340,419, Cl. 71-93.000.

MacDonald, Jack G., to Champion Road Machinery Limited. Motor grader with bar linkage blade positioning apparatus. 4,340,119, Cl. 172-789.000.

Machida Endoscope Co., Ltd.: *See—*
Oku, Toshio, 4,340,302, Cl. 356-241.000.

Mack-Wayne Plastics Company: *See—*
McIntosh, James A., 4,340,147, Cl. 215-226.000.

MacKay, Frederic M.; Winders, Gordon R.; and Whittlesey, Thomas E., to Tipper Tie, Inc. Multipart die for attachment of a metal clip. 4,339,940, Cl. 72-402.000.

MacKenzie, Gordon C.: *See—*
Klaus, Benjamin, Jr.; and MacKenzie, Gordon C., 4,339,959, Cl. 74-5.60A.

Maddison, Ronald: *See—*
McMillan, Peter W.; and Maddison, Ronald, 4,340,408, Cl. 65-31.000.

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Bar, Helmut; Mader, Herbert; Muck, Karl-Friedrich; and Zorner, Paul, 4,340,542, Cl. 549-368.000.

Maesaka, Kiyotomi: *See—*
Kato, Yoshitaka; Maesaka, Kiyotomi; Matsui, Seiichi; and Iizuka, Yoshitoku, 4,340,017, Cl. 123-182.000.

Maffitt, Kent N.; and Willson, Richard F., to Minnesota Mining and Manufacturing Company. Method of producing a microstructured surface and the article produced thereby. 4,340,276, Cl. 350-164.000.
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Magers, Wallace F.: *See*—
Ford, John M. B.; Magers, Wallace F.; and Palmisano, John J., 4,340,158, Cl. 222-321.000.
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Weigand, James R.; and Streeter, Robert D., 4,340,782, Cl. 179-1.0GS.
Magnussen, Peter: *See*—
Dockner, Toni; Kempe, Uwe; Krug, Herbert; Magnussen, Peter; and Praetorius, Werner, 4,340,745, Cl. 548-347.000.
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Maheshwary, Ashok K.; and Ayers, William M., to Halliburton Company. Oil boom for open sea skimmer barge. 4,340,321, Cl. 405-66.000.
Maho Werkzeugmaschinenbau Babel & Co.: *See*—
Babel, Werner, 4,339,962, Cl. 74-335.000.
Maida, Osamu, to Nippon Kogaku K.K. Erroneous exposure preventing device. 4,340,289, Cl. 354-173.000.
Mainland Industries, Inc.: *See*—
Lomnicki, Joseph J.; and Miller, Donald A., 4,340,099, Cl. 144-220.000.
Maio, Kenji; and Sudo, Tsuneta, to Nippon Telegraph and Telephone Public Corporation; and Hitachi, Ltd. D/A Conversion system with compensation circuit. 4,340,882, Cl. 340-347.0CC.
Mait, Russell B.: *See*—
de la Burde, Roger Z.; Mait, Russell B.; and Utsch, Francis V., 4,340,142, Cl. 209-11.000.
Maizland, Ronald E. Intrusion alarm. 4,340,884, Cl. 340-548.000.
Major, James M.: *See*—
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Henderson, Richard E. L.; Malek, Nancy J.; Moormann, Alan E.; and Pitzele, Barnett S., 4,340,730, Cl. 536-26.000.
Malinowski, Christopher W.; and Rinderle, Heinz, to Licentia Patent-Verwaltungs G.m.b.H. Frequency control system. 4,340,864, Cl. 328-133.000.
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Farley, Max F., 4,340,859, Cl. 324-158.00R.
Mallos, James B.: *See*—
DeCosta, John; Mallos, James B.; and Roe, David B., 4,340,777, Cl. 178-18.000.
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Maly, Dennis L.: *See*—
Bakula, Richard E.; Maly, Dennis L.; and Weemhoff, James H., 4,340,932, Cl. 364-200.000.
Mancini, Ugo. Food preparation machine. 4,340,343, Cl. 425-91.000.
Mandell, Gerald D. Reciprocating hydro-massage apparatus. 4,339,833, Cl. 4-542.000.
Manis, Jack J.; and Highlander, Sarah K., to Upjohn Company, The. Cointegrate plasmids and their construction from plasmids of Escherichia and Streptomyces. 4,340,674, Cl. 435-172.000.
Manley, Roger E. W., to Compair Maxam Limited. Lung ventilator. 4,340,045, Cl. 128-204.240.
Mansfield, Stanley: *See*—
Carter, James C., Jr.; and Mansfield, Stanley, 4,340,825, Cl. 307-116.000.
Manten, Heinrich, to Salzgitter Maschinen und Anlagen Aktiengesellschaft. Mounted drilling apparatus. 4,340,122, Cl. 175-78.000.
Manville Service Corporation: *See*—
Cimochowski, Anthony E.; and Heffelmire, Brad A., 4,339,902, Cl. 52-506.000.
Maplecrest Foods, Inc.: *See*—
Zamiara, Anthony W., 4,339,846, Cl. 17-1.00R.
Marcus, Erich: *See*—
Morlino, Robert J.; Decker, Quintin W.; and Marcus, Erich, 4,340,382, Cl. 8-137.000.
Marienfeld, Karl: *See*—
Wilmes, Manfred; and Marienfeld, Karl, 4,340,270, Cl. 339-95.00D.
Marinoff, Gerald P. Radial keratotomy device. 4,340,059, Cl. 128-305.000.
Marquis, David M.: *See*—
Lapporte, Seymour J.; and Marquis, David M., 4,340,758, Cl. 564-409.000.
Marsden, James G.; and Pepe, Enrico J., to Union Carbide Corporation. Polyester aminoorganosilane salt/polyalkylene oxide compositions for improved glass fiber treatment. 4,340,520, Cl. 523-209.000.
Marsh, Harold P., to Eastman Kodak Company. Pigmented polyolefin compositions. 4,340,528, Cl. 524-513.000.
Marshall, Albert H.; Shaw, Bon F.; Grimmer, Paul D.; Towle, Herbert C.; and Bond, Gary M. Linear motion and pop-up target training system. 4,340,370, Cl. 434-22.000.
Marsico, Joseph W., Jr.: *See*—
Tomcufcik, Andrews S.; Wright, William B., Jr.; and Marsico, Joseph W., Jr., 4,340,734, Cl. 544-282.000.
Martin, Jerry R.; Tadanier, John S.; and Johnson, Paulette, to Abbott Laboratories. 1,2-Modified fortimicins A and B, intermediates therefor and method for their manufacture. 4,340,727, Cl. 536-16.100.
Martin, Kenneth E., to Du Pont de Nemours, E. I., and Company. Chlorine-resistant spandex fibers. 4,340,527, Cl. 524-432.000.
Martin Marietta Corporation: *See*—
Seroskie, James M., 4,340,888, Cl. 340-755.000.
Martin, Thomas W.; Sandhu, Mohammad A.; and Savage, Dennis J., to Eastman Kodak Company. Photocrosslinkable, high-temperature-resistant polymers and their use in color imaging devices. 4,340,454, Cl. 204-159.160.
Martins, Jose, to Gulf & Western Manufacturing Co. Tool support and drilling tool. 4,340,327, Cl. 408-59.000.
Marvin Glass & Associates: *See*—
Kuna, Wayne A.; and Oberth, Christian H., 4,340,223, Cl. 273-1.0GC.
Masbruch, Richard D.: *See*—
Waldhauser, Steven J. A.; and Masbruch, Richard D., 4,339,841, Cl. 15-359.000.
Massachusetts Institute of Technology: *See*—
Deutsch, Thomas F.; Ehrlich, Daniel J.; and Osgood, Richard M., 4,340,617, Cl. 427-53.100.
Smith, Henry I.; Austin, Stewart S.; and Flanders, Dale C., 4,340,305, Cl. 356-356.000.
Massie, Norbert A., to Rockwell International Corporation. Interferometric method and system. 4,340,304, Cl. 356-351.000.
Massimilla, Leopoldo: *See*—
Campanile, Armando; Carlomagno, Giovanni M.; De Vita, Angelo; Donsi, Giorgio; Massimilla, Leopoldo; and Scognamiglio, Agostino, 4,340,400, Cl. 55-269.000.
Master, Raj N.: *See*—
Dubetsky, Derry J.; Herron, Lester W.; and Master, Raj N., 4,340,436, Cl. 156-89.000.
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Matjuschenko, Georgy E.: *See*—
Chichkin, Valentin P.; Shpigel, Efraim A.; Gokin, Gennady P.; Matjuschenko, Georgy E.; Kurakov, Nikolai N.; Rabinovich, Grigory B.; Samoilovsky, Sergei A.; Angel, Boris S.; Ilienko, Vladimir S.; Miterev, Vladimir P.; Zemlyanov, Leonid S.; and Krutkov, Anatoly F., 4,339,906, Cl. 56-327.00R.
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Matsuda, Yuzura: *See*—
Tomita, Fusao; Matsuda, Yuzura; Shirahata, Kunikatsu; Takahashi, Keiichi; Nakano, Hirofumi; Sato, Tomoyasu; Okubo, Shuji; and Nakamura, Nobuo, 4,340,725, Cl. 536-1.100.
Matsufuji, Isao: *See*—
Toda, Kohji; Takahashi, Koji; and Matsufuji, Isao, 4,340,506, Cl. 252-501.100.
Matsui, Isamu: *See*—
Sugawara, Kohichi; Matsui, Isamu; Ishimaru, Naoki; and Ikegami, Teruhiro, 4,340,577, Cl. 423-450.000.
Matsui, Seiichi: *See*—
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Matsukawa, Nobuo; and Sekine, Kenji, to Nippon Kogaku K.K. Electric rewind device for a camera. 4,340,290, Cl. 354-173.000.
Matsumiya, Takeshi; and Minoda, Minoru, to Fuji Photo Film Co., Ltd. Method for preventing formation of a heavy liquid layer on a web at a coating start position. 4,340,621, Cl. 427-294.000.
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Matsumoto, Yasuo: *See*—
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Matsushima, Yusaku: *See*—
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Matsushita Electric Industrial Co., Ltd.: *See*—
Fujita, Yosuke; Fukushima, Fumio; Fukuda, Yoji; and Nitta, Tsuneharu, 4,340,839, Cl. 313-466.000.
Okamura, Koichi; Kusakabe, Susumu; Yoshida, Masahiro; and Hiraoka, Fumio, 4,339,983, Cl. 41-466.000.
Onishi, Hiroshi; and Yamashita, Sadahiko, 4,340,975, Cl. 455-315.000.
Takano, Teruhisa; and Ueda, Shigeki, 4,340,797, Cl. 219-10.55B.
Ueda, Shigeki; and Takano, Teruhisa, 4,340,798, Cl. 219-10.55B.
Ueda, Shigeki; Takano, Teruhisa; and Suzuki, Ryuji, 4,340,799, Cl. 219-10.55C.
Ueda, Shigeki; and Takano, Teruhisa, 4,340,800, Cl. 219-10.55B.
Yamada, Takahiro; and Tanaka, Hiromichi, 4,340,909, Cl. 358-213.000.
Yamashita, Akio; and Asakawa, Shirow, 4,340,624, Cl. 428-1.000.

Matsushita, Takao; and Hirai, Kazuo, to Toray Silicone Company, Ltd. Silicone compositions for the treatment of glass fibers and methods of treatment. 4,340,090, Cl. 138-177.000.
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Guerrero, Benjamin G.; Troup, Diana C.; and White, Peter C., 4,339,889, Cl. 46-135.00A.
Maupas, Bernard V. Semi-conductor for high continuous currents. 4,340,794, Cl. 200-289.000.
Maurer, Donald D., to EMPI, Inc. Stimulation device. 4,340,063, Cl. 128-421.000.
Maurer Engineering, Inc.: *See*—
Nixon, Jeddy D., 4,340,334, Cl. 415-172.00A.
Max-Planck-Gesellschaft zur Forderung der Wissenschaften e.V.: *See*—
Timpl, Rupert, 4,340,581, Cl. 424-1.000.
Maxon Corporation: *See*—
Belknap, James L.; and Coppin, William P., 4,340,180, Cl. 239-422.000.
May, Earl L., to PPG Industries, Inc. Float glass forming chamber with isolated heating means. 4,340,410, Cl. 65-182.300.
May, Earl L., to PPG Industries, Inc. Float glass forming chamber with auxiliary heating modules. 4,340,411, Cl. 65-182.300.
May, Earl L., to PPG Industries, Inc. Float glass forming chamber with externally supported roof. 4,340,412, Cl. 65-182.500.
Mayer, Arthur. Solid-state resolver apparatus including digital angle modifier. 4,340,939, Cl. 364-603.000.
Mayer, Bruno F. P., to Discovision Associates. Hot sprue valve assembly for an injection molding machine. 4,340,353, Cl. 425-548.000.
Mayer, Reinhart, to Hoechst Aktiengesellschaft. Process for improving the filterability of viscoses. 4,340,429, Cl. 106-164.000.
Mayfield Education and Research Fund: *See*—
Kees, George, Jr.; and Shahbabian, Set, 4,340,061, Cl. 128-325.000.
Mazzer, Giacomo, to Mazzer Materie Plastiche. Plastic tube element manufacturing apparatus. 4,339,868, Cl. 29-564.100.
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Mc'Carty, Frederick B.; and Silver, Alexander, to Garrett Corporation, The. Method of making a wedge-shaped permanent magnet rotor assembly. 4,339,874, Cl. 29-598.000.
McConnell, Richard L.: *See*—
Petke, Frederick D.; and McConnell, Richard L., 4,340,526, Cl. 524-292.000.
McCormack, William E.: *See*—
Hart, John R.; Juergens, Stanley G.; and McCormack, William E., 4,340,442, Cl. 162-146.000.
McCoy, Billy R., to Sheller Globe Corporation. Molded end coil insulator. 4,340,829, Cl. 310-71.000.
McCreery, James F., to Kennametal Inc. Cutting insert. 4,340,324, Cl. 407-114.000.
McDonald, Ray S.: *See*—
Thompson, David L.; McDonald, Ray S.; Lee, Yan S.; and Stein, Marc T., 4,340,062, Cl. 128-419.0PG.
McDonnell Douglas Corporation: *See*—
Gibson, Sandra F., 4,340,671, Cl. 435-32.000.
McKinney, Howard F.; Gardner, David R.; and Wear, Frederick C., 4,340,611, Cl. 426-241.000.
McGeary, Peter G., to International Telephone and Telegraph Corporation. Coaxial electrical connector. 4,340,269, Cl. 339-90.00C.
McGraw, Leonard J.: *See*—
Patriarca, William C.; and McGraw, Leonard J., 4,340,006, Cl. 114-197.000.
McIntosh, James A., to Mack-Wayne Plastics Company. Cap with built in piercing device. 4,340,147, Cl. 215-226.000.
McIntyre, David J. Method and apparatus for estimating the endothelial cell density. 4,340,281, Cl. 351-6.000.
McIntyre, James A.; Phillips, Robert F.; and Lefevre, Joseph D., to Dow Chemical Company, The. Electrolytic cell with oxygen-depolarized cathodes. 4,340,459, Cl. 204-258.000.
McJunkin Corporation: *See*—
McJunkin, Howard P., Jr., 4,340,206, Cl. 254-199.000.
McJunkin, Howard P., Jr., to McJunkin Corporation. Clamp for repair of separation in conveyor belt. 4,340,206, Cl. 254-199.000.
McKean, Brian D., to Pacesetter Systems, Inc. Magnetic field concentration means and method for an implanted device. 4,340,038, Cl. 128-1.300.
McKee, Terrence J.: *See*—
Willis, Clive; and McKee, Terrence J., 4,340,968, Cl. 372-60.000.
McKim, Robert E. Dual input carburetor. 4,340,549, Cl. 261-144.000.
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McLean, Ronald L.; and Kamman, Gordon W., to Houdaille Industries, Inc. Method of making rubber/viscous torsional vibration dampers. 4,339,862, Cl. 29-424.000.
McMillan, James S.: *See*—
Brown, Glenn R.; and McMillan, James S., 4,340,340, Cl. 425-71.000.
McMillan, Peter W.; and Maddison, Ronald, to National Research Development Corporation. High silica glass. 4,340,408, Cl. 65-31.000.
McNeil Corporation: *See*—
Braun, John L.; Smith, Denver W.; and Ekey, William J., 4,340,853, Cl. 324-51.000.
McNinch, Delmar: *See*—
Newlon, Robert L.; and McNinch, Delmar, 4,339,845, Cl. 16-300.000.
McNinney, Richard P.: *See*—
Thompson, Robert E.; and McNinney, Richard P., 4,339,897, Cl. 51-436.000.
McQuay, William C.: *See*—
Altman, Wilbur E.; and McQuay, William C., 4,339,850, Cl. 17-69.000.
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Calvert, Rodney K., 4,340,380, Cl. 493-316.000.
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Williams, Robert H., 4,340,036, Cl. 126-452.000.
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George, Robert D.; and Hoy, Robert P., 4,339,872, Cl. 29-597.000.
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Medeiros, John M. Space-saving mushroom form support. 4,340,075, Cl. 135-15.0PQ.
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Goodwin, Brian; and Middleton, Peter, 4,340,615, Cl. 427-2.000.
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Howard, William G.; Strohkirch, John C.; and Pehl, Marilyn A., 4,340,651, Cl. 429-101.000.
Johnson, Keith M., 4,339,831, Cl. 3-1.500.
Thompson, David L.; McDonald, Ray S.; Lee, Yan S.; and Stein, Marc T., 4,340,062, Cl. 128-419.0PG.
Meehan, Richard G.: *See*—
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Mendelson, Ralph R. Tilt indicator for shipping containers. 4,340,008, Cl. 116-215.000.
Menezes, William A., to Sony Corporation. Apparatus and method for detecting discontinuities in time code addresses. 4,340,916, Cl. 360-72.200.
Menge, Richard J. Metal cross support. 4,339,903, Cl. 52-657.000.
Mennen, Frederick C. Method of using over the counter swab kit for self detection of gonorrhea in the male using tetramethyl chromogen ampul. 4,340,670, Cl. 435-25.000.
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Stoudt, Thomas H.; and Nollstadt, Karl H., 4,340,673, Cl. 435-97.000.
Messerschmitt-Bolkow-Blohm GmbH: *See*—
Jager, Ernst H., 4,339,995, Cl. 102-310.000.
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Gammon, Michael W., 4,340,423, Cl. 75-87.000.
Metex Corporation: *See*—
Townsend, Peter, 4,340,210, Cl. 267-137.000.
Metz, Arthur J., to Tektronix, Inc. Thermally-compensated variable gain differential amplifier. 4,340,866, Cl. 330-254.000.
Meyer-Pittroff, Roland; Becker, Bernard; and Finckh, Hermann, to Kraftwerk Union Aktiengesellschaft. Apparatus and method for partial-load operation of a combined gas and steam turbine plant. 4,340,820, Cl. 290-40.00R.
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Meyer, Thomas W., to United States of America, Air Force. Low volume, lightweight, high voltage electron gun. 4,340,837, Cl. 313-259.000.
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Meyn, Pieter. Apparatus for removing the cut off feet of a fowl from an overhead conveyor shackle. 4,339,848, Cl. 17-11.000.
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Michikawa, Hirokuni. Means for accelerating the discharge of exhaust gas from an internal combustion engine. 4,339,918, Cl. 60-316.000.
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Miller, Peter T., to Pitney Bowes Inc. Cleaning device for writing heads used in ink jet recorders and printers. 4,340,897, Cl. 346-140.00R.
Miller, Stephen J.; and Bishop, Keith C., III, to Chevron Research Company. Dual component crystalline silicate cracking catalyst. 4,340,465, Cl. 208-120.000.
Miller, Wayne J.: *See*—
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Milner, David J., to Imperial Chemical Industries Limited. Process for the preparation of 1,4-dialkylbut-2-ene-1,4-diones. 4,340,764, Cl. 568-386.000.
Mina, George L., to Ethyl Corporation. Antioxidant process using formaldehyde. 4,340,767, Cl. 568-720.000.
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Maffitt, Kent N.; and Willson, Richard F., 4,340,276, Cl. 350-164.000.
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Peterson, Stanley G., 4,339,858, Cl. 29-131.000.
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Miu, Ming T.; Bradley, John J.; Panepinto, William, Jr.; and Shen, Jian-Kuo, to Honeywell Information Systems Inc. Data processing system having centralized nonexistent memory address detection. 4,340,933, Cl. 364-200.000.
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Miyata, Shigeo, to Kyowa Chemical Industry Co. Ltd. Detergent-dispersant composition for lubricating or fuel oils. 4,340,493, Cl. 252-18.000.
Miyazawa, Yoshiaki, to Tokyo Shibaura Denki Kabushiki Kaisha. Uninterruptible power supply. 4,340,823, Cl. 307-66.000.
Mizelle, Ned W., to Hoover Universal, Inc. Box spring assembly with interlocked formed wire components and method of assembling same. 4,339,834, Cl. 5-255.000.
Mizuhara, Howard: *See*—
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Molivadas, Stephen. Solar heating system. 4,340,030, Cl. 126-421.000.
Monbaliu, Marcel J.; De Winter, Walter F.; and Van Poucke, Raphael K., to Agfa-Gevaert, N.V. Copolymer latex and photographic silver halide materials containing such latex. 4,340,664, Cl. 430-449.000.
Mongeon, Robert J., to United Technologies Corporation. Optical doppler radar system using a conically scanned laser beam. 4,340,299, Cl. 356-28.500.
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Van Eenam, Donald N., 4,340,692, Cl. 525-329.000.
Monson, Clifford L. Rotary flooring surface treating device. 4,339,840, Cl. 15-321.000.
Montealegre, James, to Champion International Corporation. Article carrier and a blank for forming the same. 4,340,170, Cl. 229-52.00B.
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Moore, Michael R. P. Method of cooking shellfish. 4,340,613, Cl. 426-456.000.
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Moran, John C., to Bell Telephone Laboratories, Incorporated. Time division switching system. 4,340,960, Cl. 370-62.000.
Moretti, Anthony L.; and Ferris, Lester W., to E. D. Bullard Company. Vortex tube. 4,339,926, Cl. 62-5.000.
Mori, Fumio; Matsuda, Gunji; Yoshida, Toshihiko; and Nagashima, Shigeru, to Toyo Seikan Kaisha, Ltd. Lined closure. 4,340,149, Cl. 215-343.000.
Mori, Kei. Radiation energy collection and tracking apparatus. 4,340,812, Cl. 250-203.00R.
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Morlino, Robert J.; Decker, Quintin W.; and Marcus, Erich, to Union Carbide Corporation. Method for treating and processing textile materials. 4,340,382, Cl. 8-137.000.
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Moshofsky, Jerome F.; and Trout, Jerry, to Waddle, Russell E. Hydraulic bean cleaning process and apparatus. 4,340,143, Cl. 209-158.000.
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Moteki, Tsutomu; Yamaguchi, Kunihiro; and Nakajima, Yoshikazu, to Chisso Corporation; and Kabushiki Kaisha Mikuni Seisakusho. Polyolefin resin composition. 4,340,513, Cl. 524-13.000.
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Shaw, Mark L., 4,340,824, Cl. 307-115.000.
Motoyama, Kazuyasu; Nakao, Toshihiro; Kanayama, Katsumi; and Furuta, Kenzi, to Olympus Optical Co., Ltd. Operation mode display apparatus. 4,340,951, Cl. 369-53.000.
Mounce, George R. Microprocessor navigational aid system. 4,340,936, Cl. 364-443.000.
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Muller, Walter, to Ewikon Entwicklung und Konstruktion GmbH & Co. KG. Arrangement for supplying molten plastic material. 4,340,156, Cl. 222-146.0HE.
Munday, Peter J., to Racal Research Limited. Methods and systems for the correction of errors in data transmission. 4,340,963, Cl. 371-37.000.
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Murao, Yoshio. Clearer device for draft rolls. 4,339,852, Cl. 19-264.000.
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Murphy, Raymond J. Bearing and support. 4,340,216, Cl. 272-109.000.
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Nakamura, Toshiaki; and Yamamoto, Akira, to Olympus Optical Co., Ltd. Microphone sensitivity-changing apparatus. 4,340,915, Cl. 360-61.000.
Nakano, Hirofumi: *See—*
Tomita, Fusao; Matsuda, Yuzura; Shirahata, Kunikatsu; Takahashi, Keiichi; Nakano, Hirofumi; Sato, Tomoyasu; Okubo, Shuji; and Nakamura, Nobuo, 4,340,725, Cl. 536-1.100.
Nakao, Toshihiro: *See—*
Motoyama, Kazuyasu; Nakao, Toshihiro; Kanayama, Katsumi; and Furuta, Kenzi, 4,340,951, Cl. 369-53.000.
Nakata, Kazuo: *See—*
Ichikawa, Akira; Nakata, Kazuo; Nakajima, Akira; Ohta, Yoshihiro; and Umemura, Kazuhiro, 4,340,781, Cl. 179-1.0SA.
Nara, Tamotsu; and Kamiya, Soji, to Taiho Kogyo Co., Ltd. Aluminum-tin base bearing alloy and composite. 4,340,649, Cl. 428-653.000.
Naruo, Kyoichi: *See—*
Mikawa, Akikazu; and Naruo, Kyoichi, 4,340,663, Cl. 430-496.000.
National Repellents, Inc.: *See—*
Antonik, Steve J., 4,340,587, Cl. 424-95.000.
National Research Development Corporation: *See—*
Anson, Michael; Chung, Shin-Ho; and Pettigrew, Alan G., 4,339,954, Cl. 73-657.000.
McMillan, Peter W.; and Maddison, Ronald, 4,340,408, Cl. 65-31.000.
National Semiconductor Corporation: *See—*
Dias, Francis F., II, 4,340,887, Cl. 340-711.000.
Navarro, Bernard J. Dual turbine turbo-supercharger. 4,339,922, Cl. 60-602.000.
Neier, Wilhelm: *See—*
Brandes, Gunter; Neier, Wilhelm; Wollner, Johannes; Webers, Werner; and deVleesschauwer, Walter F., 4,340,769, Cl. 568-899.000.
Nelson, Arthur R.: *See—*
Boldt, Robert R.; and Nelson, Arthur R., 4,340,886, Cl. 340-682.000.
Nelson, Lorne W.; and Torborg, Ralph H., to Honeywell Inc. Furnace control using induced draft blower, exhaust gas flow rate sensing and density compensation. 4,340,355, Cl. 431-20.000.
Nemas, Mara: *See—*
Kraus, Menahem A.; Livni, Avinoam; Nemas, Mara; and Frommer, Moshe A., 4,340,475, Cl. 210-232.000.
Netting, David I.; Spivack, Bruce D.; and Cunnion, James P., Jr., to PQ Corporation. Surface modified hollow microspheres. 4,340,642, Cl. 428-402.000.

Neubauer, Jeffrey A.; and Reese, Walter J., to PPG Industries, Inc. Pressurized gas accelerators for reciprocating device. 4,340,406, Cl. 65-9.000.

Neuzil, Richard W.; and Priegnitz, James W., to UOP Inc. Process for separating a ketose from an aldose by selective adsorption. 4,340,724, Cl. 536-127.000.

Newlon, Robert L.; and McNinch, Delmar, to Lawrence Brothers, Inc. Spring hinge. 4,339,845, Cl. 16-300.000.

Newport Pharmaceuticals International, Inc.: *See*—
Simon, Lionel N.; Giner-Sorolla, Alfredo; and Guttag, Alvin, 4,340,726, Cl. 536-17.400.

NGK Insulators, Ltd.: *See*—
Higuchi, Noboru; Yano, Teruo; and Ohnishi, Masahiro, 4,340,403, Cl. 55-523.000.

NHK Spring Co., Ltd.: *See*—
Ohno, Akira; Katayama, Shitomi; Nomura, Suguru; Senaha, Susumu; Kyo, Suizo; Shimomura, Susumu; Akagami, Akira; and Imai, Hiroshi, 4,340,646, Cl. 428-429.000.

Niccolls, Paul L. Dressed fowl leg hold-down means. 4,339,847, Cl. 17-1.00S.

Nicoletti, Alberto: *See*—
Colombo, Virginio; Nicoletti, Alberto; and Casu, Benito, 4,340,731, Cl. 536-87.000.

Niedermeyer, William P. High ratio solar energy concentrating collector. 4,340,031, Cl. 126-424.000.

Nield, Philip N.: *See*—
Cooke, Billy O.; and Nield, Philip N., 4,340,974, Cl. 455-258.000.

Niihara, Koichi: *See*—
Hirai, Toshio; and Niihara, Koichi, 4,340,568, Cl. 422-245.000.

Nilsson, Nils-Ake. Porous Tread and method of making same. 4,340,103, Cl. 152-209.00R.

Nilsson, Soren G.; and Carneborn, Leif R. Device for mounting circuit components on a circuit board. 4,340,774, Cl. 174-138.00G.

Ninomiya, Masakazu; Kiuchi, Hideo; Suzuki, Atsushi; and Kobayashi, Nobuyuki, to Toyota Jidosha Kogyo Kabushiki Kaisha. Fuel injection device of an internal combustion engine. 4,340,022, Cl. 123-453.000.

Nioras, Robert L., to RJR Foods, Inc. Flexible pouch and thermocouple locator therefor. 4,340,610, Cl. 426-88.000.

Nippon Carbide Kogyo Kabushiki Kaisha: *See*—
Takahashi, Atsushi; Muratsubaki, Yoshiharu; and Ishizuka, Hiroyuki, 4,340,422, Cl. 75-58.000.

Nippon Chemical Industrial Co., Ltd.: *See*—
Tabei, Seikichi; and Sasaki, Shigeo, 4,340,426, Cl. 75-257.000.

Nippon Electric Co., Ltd.: *See*—
Anazawa, Shinzo; and Kozu, Hideaki, 4,340,901, Cl. 357-68.000.
Umetsu, Shinjiro, 4,340,973, Cl. 455-228.000.

Nippon Gakki Seizo Kabushiki Kaisha: *See*—
Imamura, Akio, 4,339,978, Cl. 84-1.030.

Nippon Hoso Kyokai: *See*—
Iwamura, Soichi; Nishida, Yasuaki; Yamato, Toshimi; Sawazaki, Norikazu; Nishi, Yoshio; Watanabe, Masaharu; and Endo, Norio, 4,340,953, Cl. 369-126.000.

Nippon Kogaku K.K.: *See*—
Maida, Osamu, 4,340,289, Cl. 354-173.000.
Matsukawa, Nobuo; and Sekine, Kenji, 4,340,290, Cl. 354-173.000.
Ogasawara, Akira; Shirasu, Hiroshi; and Utagawa, Ken, 4,340,819, Cl. 250-578.000.
Ohtsubo, Yoshiaki; and Watanabe, Sakuji, 4,340,284, Cl. 354-50.000.

Nippon Kokan Kabushiki Kaisha: *See*—
Honda, Akira; Ishikawa, Masaru; Mizuoka, Seishi; and Ono, Katsunori, 4,340,110, Cl. 164-435.000.
Taira, Tadaaki; Ishihara, Toshio; Itoshima, Hiromichi; Mihara, Yutaka; and Kogawa, Takashi, 4,339,941, Cl. 72-412.000.

Nippon Steel Corporation: *See*—
Nakagawa, Makoto; and Mori, Takeshi, 4,339,938, Cl. 72-178.000.

Nippon Telegraph and Telephone Public Corporation: *See*—
Maio, Kenji; and Sudo, Tsuneta, 4,340,882, Cl. 340-347.0CC.

Nippondenso Co., Ltd.: *See*—
Iwata, Yasuhiro; Usami, Kiyoshi; Nabeta, Teiichi; Naganoma, Masanori; and Kojima, Yasuhumi, 4,340,113, Cl. 165-25.000.

Nishi, Yoshio: *See*—
Iwamura, Soichi; Nishida, Yasuaki; Yamato, Toshimi; Sawazaki, Norikazu; Nishi, Yoshio; Watanabe, Masaharu; and Endo, Norio, 4,340,953, Cl. 369-126.000.

Nishida, Yasuaki: *See*—
Iwamura, Soichi; Nishida, Yasuaki; Yamato, Toshimi; Sawazaki, Norikazu; Nishi, Yoshio; Watanabe, Masaharu; and Endo, Norio, 4,340,953, Cl. 369-126.000.

Nishii, Yasuo: *See*—
Aoki, Tadao; Miyakoshi, Hideo; Hirasawa, Yoshihei; and Nishii, Yasuo, 4,340,604, Cl. 424-236.000.

Nishikawa, Kohei: *See*—
Furukawa, Yoshiyasu; Kishimoto, Shoji; and Nishikawa, Kohei, 4,340,598, Cl. 424-273.00R.

Nishikawa, Tokio: *See*—
Mishiro, Mashahiro; Nishikawa, Tokio; Ohashi, Shigeyasu; and Yokokawa, Yasuo, 4,340,481, Cl. 210-500.200.

Nishikawa, Yukio, to Precision Monolithics, Inc. Powerless starting circuit. 4,340,851, Cl. 323-311.000.

Nishizawa, Jun-ichi; and Hayashi, Yutaka, to Zaidan Hojin Handotai Kenkyu Shinkokai; and Agency of Industrial Science and Technology. Semiconductor integrated circuit. 4,340,827, Cl. 307-477.000.

Nissan Motor Company, Ltd.: *See*—
Oshiage, Katsunori; and Ezoe, Mitsuhiko, 4,340,021, Cl. 123-425.000.
Suzuki, Suzuo; Nakagawa, Yasuhiko; Aihara, Hisamoto; Matsumoto, Yasuo; and Sato, Yoji, 4,340,024, Cl. 123-538.000.

Nisshin Flour Milling Co., Ltd.: *See*—
Tahara, Yoshiyuki; Koyama, Hiroyasu; Komatsu, Yasuhiro; Kubota, Reiko; and Takahashi, Toshihiro, 4,340,760, Cl. 564-462.000.

Niswander, Thomas E.: *See*—
Koenig, Bruce E.; and Niswander, Thomas E., 4,339,890, Cl. 47-9.000.

Nitta, Tsuneharu: *See*—
Fujita, Yosuke; Fukushima, Fumio; Fukuda, Yoji; and Nitta, Tsuneharu, 4,340,839, Cl. 313-466.000.

Nivison-Weiskopf Co., The: *See*—
Heiman, Joseph L.; and Reckseit, Bernard S., 4,340,162, Cl. 225-48.000.

Nixon, Jeddy D., to Maurer Engineering, Inc. Turbodrill with rubber rotor bearings. 4,340,334, Cl. 415-172.00A.

Noda, Atsushi: *See*—
Hanagata, Takayoshi; and Noda, Atsushi, 4,340,848, Cl. 318-561.000.

Nohira, Hiroyuki; Fujii, Hiroshi; Yajima, Masami; and Fujimura, Rieko, to Nohira, Hiroyuki. Method of optical resolution of (±)-2-amino-1-butanol and/or (±)-mandelic acid. 4,340,751, Cl. 562-401.000.

Noiles, Douglas G., to Delmed Inc. Medical fluid flow rate indicating-/controlling device. 4,340,050, Cl. 128-214.00C.

Nolet, Giovanni: *See*—
Lee, Henry L., Jr.; and Nolet, Giovanni, 4,340,529, Cl. 524-105.000.
Lee, Henry L., Jr.; and Nolet, Giovanni, 4,340,532, Cl. 524-854.000.

Nollstadt, Karl H.: *See*—
Stoudt, Thomas H.; and Nollstadt, Karl H., 4,340,673, Cl. 435-97.000.

Nolte, Wilfried; and Esser, Heinz, to Bayer Aktiengesellschaft. Process for the production of a cationic polychloroprene latex and a mixture of this latex with bitumen emulsion. 4,340,518, Cl. 524-61.000.

Nomi, Haruo, to Junkosha Co., Ltd. Colored, porous fluorocarbon material and method for its manufacture. 4,340,384, Cl. 8-495.000.

Nomura, Suguru: *See*—
Ohno, Akira; Katayama, Shitomi; Nomura, Suguru; Senaha, Susumu; Kyo, Suizo; Shimomura, Susumu; Akagami, Akira; and Imai, Hiroshi, 4,340,646, Cl. 428-429.000.

Nomura, Toshiyuki: *See*—
Kito, Michimasa; and Nomura, Toshiyuki, 4,340,357, Cl. 431-328.000.

Nonn, Konrad; Laser, Joachim; Wolf, Karlheinz; Hornle, Reinhold; and Istel, Erich, to Bayer Aktiengesellschaft. Process for the preparation of water-soluble dyestuffs with a low salt content. 4,340,389, Cl. 8-620.000.

Noomem, Arie, to Akzo N.V. U.V.-Curable resin with amine accelerator. 4,340,453, Cl. 204-159.150.

Norman, Travis. Electronic music instrument. 4,339,979, Cl. 84-1.230.

North American Philips Corporation: *See*—
Schreurs, Willy P., 4,340,512, Cl. 523-122.000.

Northern Research & Engineering Corp.: *See*—
Heitmann, Arnold M.; and Lord, Richard E., Jr., 4,340,317, Cl. 403-25.000.

Northern Telecom Limited: *See*—
Awadalla, Makary M., 4,340,785, Cl. 179-51.0AA.

NSK-Warner K.K.: *See*—
Ikesue, Haruyuki, 4,339,854, Cl. 24-230.0AL.

Nukaga, Tokuji. Safety electrical plug. 4,340,267, Cl. 339-42.000.

Oak Industries Inc.: *See*—
den Toonder, Pieter; Seltenrijch, Johannes C.; Stubbs, Graham S.; Fondse, Pieter J.; and Jirka, Howard F., 4,340,906, Cl. 358-124.000.

Obata, Yutaka: *See*—
Takeuchi, Yasumasa; Obata, Yutaka; Ohshima, Noboru; Shibata, Tooru; and Nakako, Kaoru, 4,340,685, Cl. 525-247.000.

Obayashi, Shigeji; Nakamura, Morio; Fujiki, Koichi; and Yamamoto, Takushi, to Seitetsu Kagaku Co., Ltd. Alkali metal acrylate or ammonium acrylate polymer excellent in salt solution-absorbency and process for producing same. 4,340,706, Cl. 526-207.000.

Oberth, Christian H.: *See*—
Kuna, Wayne A.; and Oberth, Christian H., 4,340,223, Cl. 273-1.0GC.

Obrist, Gerhard, to Aerosol Service AG. Two-compartment pack. 4,340,155, Cl. 222-135.000.

O'Conor, Eugene F., to Mobay Chemical Corporation. Leadless glazes for whiteware. 4,340,645, Cl. 428-428.000.

Odders, Charles N.: *See*—
Bloch, Daniel R.; Odders, Charles N.; and Rogers, John R., 4,340,057, Cl. 128-284.000.

Odlen, Lars, to Transcale AB. Self-correcting audio equalizer. 4,340,780, Cl. 179-1.00D.

Oediger, Hermann: *See*—
Lieb, Folker; Oediger, Hermann; and Streible, Gert, 4,340,599, Cl. 424-212.000.

Oerlikon-Burhle U.S.A. Inc.: *See*—
Sarcia, Domenico S., 4,339,927, Cl. 62-6.000.

Officine Savio, S.p.A.: *See*—
Pfeifer, Hermann, 4,339,914, Cl. 57-302.000.

Ogasawara, Akira; Shirasu, Hiroshi; and Utagawa, Ken, to Nippon Kogaku K.K. Photoelectric element array with automatic control of the charge storage time. 4,340,819, Cl. 250-578.000.

Ogura, Katsuyuki: *See—*
Tsuchihashi, Genichi; Mitamura, Shuichi; and Ogura, Katsuyuki, 4,340,740, Cl. 548-169.000.

Ohara, Katsunobu; Tanaka, Keiji; Ando, Yujiro; and Moriyama, Inao, to Canon Kabushiki Kaisha. Electrophotographic apparatus. 4,340,296, Cl. 355-35.00C.

Ohashi, Shigeyasu: *See—*
Mishiro, Mashahiro; Nishikawa, Tokio; Ohashi, Shigeyasu; and Yokokawa, Yasuo, 4,340,481, Cl. 210-500.200.

Ohba, Yozo: *See—*
Toyoda, Takashi; Ohba, Yozo; and Yamanaka, Masaaki, 4,340,639, Cl. 428-338.000.

Ohlinger, Manfred; Vaeth, Guenter; Mueller, Norbert; and Wettstein, Eugen, to BASF Aktiengeselischaft. Process for the manufacture of ferromagnetic chromium dioxide. 4,340,494, Cl. 252-62.560.

Ohnishi, Masahiro: *See—*
Higuchi, Noboru; Yano, Teruo; and Ohnishi, Masahiro, 4,340,403, Cl. 55-523.000.
Oono, Hiroshi; and Ohnishi, Masahiro, 4,340,894, Cl. 346-108.000.

Ohno, Akira; Katayama, Shitomi; Nomura, Suguru; Senaha, Susumu; Kyo, Suizo; Shimomura, Susumu; Akagami, Akira; and Imai, Hiroshi, to NHK Spring Co., Ltd.; and Yokohama Kiko Co., Ltd. Multi-layer reflectors. 4,340,646, Cl. 428-429.000.

Ohshima, Noboru: *See—*
Takeuchi, Yasumasa; Obata, Yutaka; Ohshima, Noboru; Shibata, Tooru; and Nakako, Kaoru, 4,340,685, Cl. 525-247.000.

Ohta, Yoshihiro: *See—*
Ichikawa, Akira; Nakata, Kazuo; Nakajima, Akira; Ohta, Yoshihiro; and Umemura, Kazuhiro, 4,340,781, Cl. 179-1.0SA.

Ohtsubo, Yoshiaki; and Watanabe, Sakuji, to Nippon Kogaku K.K. Temperature-compensated signal transmitting device. 4,340,284, Cl. 354-50.000.

Ohwada, Yoshiaki: *See—*
Shimada, Sachio; and Ohwada, Yoshiaki, 4,340,186, Cl. 242-7.05B.

Oji Yuka Goseishi Co., Ltd.: *See—*
Toyoda, Takashi; Ohba, Yozo; and Yamanaka, Masaaki, 4,340,639, Cl. 428-338.000.

Okabe, Moisei: *See—*
Kanamaru, Hisanobu; Okabe, Moisei; Tatsumi, Hideo; Tohkairin, Akira; and Kasama, Ryoji, 4,339,873, Cl. 29-598.000.

Okamura, Koichi; Kusakabe, Susumu; Yoshida, Masahiro; and Hiraoka, Fumio, to Matsushita Electric Industrial Co., Ltd. Clamping device for clamping plate-like members. 4,339,983, Cl. 41-466.000.

Okinaka, Yutaka; and Wolowodiuk, Catherine, to Bell Telephone Laboratories, Incorporated. Method of replenishing gold/in plating baths. 4,340,451, Cl. 204-46.00G.

Oku, Toshio, to Machida Endoscope Co., Ltd. Endoscope with sensor. 4,340,302, Cl. 356-241.000.

Okubo, Shuji: *See—*
Tomita, Fusao; Matsuda, Yuzura; Shirahata, Kunikatsu; Takahashi, Keiichi; Nakano, Hirofumi; Sato, Tomoyasu; Okubo, Shuji; and Nakamura, Nobuo, 4,340,725, Cl. 536-1.100.

Olah, Jozsef: *See—*
Toth, Andras; Toth nee Palotai, Emese; Olah, Jozsef; Bitskey, Jozsef; and Bulkai, Lajos, 4,340,488, Cl. 210-705.000.

Oldenburger Betonsteinwerke GmbH: *See—*
Schnier, Egon, 4,340,247, Cl. 294-63.00R.

Olin Corporation: *See—*
Kircher, Morton S., 4,340,460, Cl. 204-258.000.

Olmo Emerson S.p.A.: *See—*
Magnaghi, Adriano, 4,339,871, Cl. 29-596.000.

Olschewski, Armin; Brandenstein, Manfred; Walter, Lothar; and Kunkel, Heinrich, to SKF Kugellagerfabriken GmbH. Clutch release device. 4,340,135, Cl. 192-98.000.

Olympus Optical Co., Ltd.: *See—*
Furuta, Kenzi, 4,340,917, Cl. 360-74.200.
Hanaoka, Naohiro, 4,340,914, Cl. 360-59.000.
Kato, Toshikazu, 4,340,919, Cl. 360-109.000.
Motoyama, Kazuyasu; Nakao, Toshihiro; Kanayama, Katsumi; and Furuta, Kenzi, 4,340,951, Cl. 369-53.000.
Nakamura, Toshiaki; and Yamamoto, Akira, 4,340,915, Cl. 360-61.000.
Saitou, Sinichi, 4,340,194, Cl. 242-199.000.
Yamashita, Nobuo; and Nakahashi, Ken-ichi, 4,340,811, Cl. 250-201.000.

Omi, Hidehiko: *See—*
Ishibashi, Kazuhisa; and Omi, Hidehiko, 4,340,801, Cl. 219-10.710.

Omodei-Sale, Amedeo: *See—*
Toja, Emilio; Omodei-Sale, Amedeo; and Selva, Domenica, 4,340,607, Cl. 424-273.00B.

Onishi, Hiroshi; and Yamashita, Sadahiko, to Matsushita Electric Industrial Company, Limited. Microwave mixing circuit and a VHF-UHF tuner having the mixing circuit. 4,340,975, Cl. 455-315.000.

Onishi, Masatoshi: *See—*
Jinbo, Susumu; Kohno, Shoichi; and Onishi, Masatoshi, 4,340,768, Cl. 568-730.000.

Ono, Katsunori: *See—*
Honda, Akira; Ishikawa, Masaru; Mizuoka, Seishi; and Ono, Katsunori, 4,340,110, Cl. 164-435.000.

Ono, Shigetoshi; and Fujita, Shinsaku, to Fuji Photo Film Co., Ltd. Photographic light sensitive sheet for color diffusion transfer process. 4,340,661, Cl. 430-223.000.

Ontario Cancer Institute: *See—*
Foster, Francis S., 4,339,952, Cl. 73-624.000.

Oonishi, Toshiyuki; Tsutsumi, Masato; and Nakagawa, Noboru, to Tokyo Shibaura Denki Kabushiki Kaisha. Refrigerating apparatus. 4,340,404, Cl. 62-198.000.

Oono, Hiroshi; and Ohnishi, Masahiro, to Fuji Photo Film Co., Ltd. Laser beam recording system. 4,340,894, Cl. 346-108.000.

Opcon, Inc.: *See—*
Foster, Theodore C., 4,340,137, Cl. 198-457.000.

Orain, Michel A., to Glaenzer Spicer. Axially retained homokinetic joint. 4,339,931, Cl. 464-111.000.

Orlandi, Giorgio, to Societa Italiana Telecomunicazioni Siemens S.p.A. Apparatus for testing an analog/digital converter. 4,340,856, Cl. 324-73.00R.

Orlando, Franklin P., to FMC Corporation. Lifting and steering system for a vehicle and a vehicle using the same. 4,340,237, Cl. 280-92.000.

Orlowski, Friedrich-August: *See—*
List, Ferdinand; and Orlowski, Friedrich-August, 4,340,752, Cl. 562-485.000.

Oronzio deNora Elettrochimici S.p.A.: *See—*
deNora, Oronzio, 4,340,452, Cl. 204-129.000.

Ort, Donald L., to Xerox Corporation. Scanning dryer for ink jet printers. 4,340,893, Cl. 346-1.100.

Osborne, Vernon E.: *See—*
Wahlers, Richard L.; and Osborne, Vernon E., 4,340,508, Cl. 252-520.000.

Osegowitsch, Viktor: *See—*
Fernandez, Avelino; Glass, Josef; and Osegowitsch, Viktor, 4,340,294, Cl. 354-321.000.

Osgood, Richard M.: *See—*
Deutsch, Thomas F.; Ehrlich, Daniel J.; and Osgood, Richard M., 4,340,617, Cl. 427-53.100.

Oshiage, Katsunori; and Ezoe, Mitsuhiko, to Nissan Motor Company, Ltd. Ignition advance angle controlling device. 4,340,021, Cl. 123-425.000.

Ota, Chuichi: *See—*
Akiba, Shigeyuki; Suematsu, Yasuharu; Arai, Shigehisa; Kodaira, Masanobu; Itaya, Yoshio; Iga, Kenichi; Ota, Chuichi; Yamamoto, Takaya; and Sakai, Kazuo, 4,340,966, Cl. 372-45.000.

Ota, Hiroshi; Horigome, Eiji; and Azegami, Hitoshi, to TDK Electronics Co., Ltd. Magnetic recording medium. 4,340,644, Cl. 428-423.700.

Ott, Conrad L.; and Ris, George E., to Automatic Connector, Inc. Multi-coaxial/power pin connector assembly having integral ground. 4,340,265, Cl. 339-14.00R.

Outboard Marine Corporation: *See—*
Ehrlich, Josef, 4,340,016, Cl. 123-73.00R.
Kirk, J. David, 4,340,018, Cl. 123-193.00C.

Overton, William C., Jr.: *See—*
Steyert, William A., Jr.; and Overton, William C., Jr., 4,340,405, Cl. 62-514.00R.

Overway, Timothy A.: *See—*
Arora, Manohar L.; Overway, Timothy A.; and Foye, Thomas E., 4,340,431, Cl. 106-262.000.

Ovshinsky, Stanford R.; Hines, Leon F.; Citkowski, Ronald W.; and Yu, Terry T., to Energy Conversion Devices, Inc. Tellurium imaging composition. 4,340,662, Cl. 430-270.000.

Owens-Corning Fiberglas Corporation: *See—*
Beckman, John T.; and Sanik, Paul S., 4,340,965, Cl. 371-62.000.
Greaves, Gerald G., Jr., 4,340,009, Cl. 116-227.000.

Owens, Joe M. Vibratory concrete screed with eccentric drive shaft. 4,340,351, Cl. 425-456.000.

Oy Wartsila Ab: *See—*
Koutonen, Pauli; and Alanco, Lars-Erik, 4,339,904, Cl. 53-137.000.

Ozaki, Yoshihiro: *See—*
Seino, Kuniki; and Ozaki, Yoshihiro, 4,340,656, Cl. 430-48.000.

Pace, Gary L., to Motorola, Inc. Current mode biquadratic active filter. 4,340,868, Cl. 330-294.000.

Pacesetter Systems, Inc.: *See—*
McKean, Brian D., 4,340,038, Cl. 128-1.300.

Packer, Marvin; and Black, Otis D., to RCA Corporation. Coated printed circuit wiring board and method of soldering. 4,340,167, Cl. 228-180.00R.

Pako Corporation: *See—*
Jensen, Gerald A., 4,340,213, Cl. 271-219.000.

Pall Corporation: *See—*
Pall, David B., 4,340,479, Cl. 210-490.000.
Pall, David B.; and Model, Frank, 4,340,480, Cl. 210-490.000.

Pall, David B., to Pall Corporation. Process for preparing hydrophilic polyamide membrane filter media and product. 4,340,479, Cl. 210-490.000.

Pall, David B.; and Model, Frank, to Pall Corporation. Process for preparing liquophilic polyamide membrane filter media and product. 4,340,480, Cl. 210-490.000.

Pallos, Ferenc M.: *See—*
MacDonald, Alan A.; Pallos, Ferenc M.; and Teach, Eugene G., 4,340,419, Cl. 71-93.000.

Palluel, Auguste L.: *See—*
Backhouse, Alan J.; and Palluel, Auguste L., 4,340,511, Cl. 524-504.000.

Palmisano, John J.: *See—*
Ford, John M. B.; Magers, Wallace F.; and Palmisano, John J., 4,340,158, Cl. 222-321.000.

Panepinto, William, Jr.: *See—*
Miu, Ming T.; Bradley, John J.; Panepinto, William, Jr.; and Shen, Jian-Kuo, 4,340,933, Cl. 364-200.000.

Pantani, Jean-Pierre: *See—*
Delaporte, Francois X.; Lebesnerais, Gerard M.; and Pantani, Jean-Pierre, 4,340,922, Cl. 361-91.000.

Papazian, Harry: *See—*
Canale, Ralph D.; Canale, Albert S.; and Papazian, Harry, 4,340,509, Cl. 252-529.000.
Pape, Heinz: *See—*
Quella, Ferdinand; and Pape, Heinz, 4,340,817, Cl. 250-458.000.
Papst-Motoren KG: *See—*
Muller, Rolf, 4,339,875, Cl. 29-602.00R.
Papuchon, Michel; and Puech, Claude, to Thomson-CSF. Light intensity modulator in an integrated optical circuit with feedback means. 4,340,272, Cl. 350-96.140.
Parke, Patrick P.; Bauer, Brady G.; Meitl, Kenneth G.; Thompson, Wayne L.; and Voegeli, Thomas J., to Kansas State University Research Foundation. Manure spreading apparatus. 4,340,182, Cl. 239-680.000.
Pasley, Harry M., to Eaton Investment Company, a part interest. Tank for a fluid system. 4,340,078, Cl. 137-205.500.
Pate, Daniel R.; Delaney, Robert R.; and Shuleva, John J., to SCM Corporation. Process for concentrating a flow of lipids in solvent. 4,340,547, Cl. 260-428.500.
Patel, Gordhanbhai N.: *See—*
Yee, Kwok C.; Preziosi, Anthony F.; Patel, Gordhanbhai N.; Chance, Ronald R.; Miller, Granville G.; and Baughman, Ray H., 4,339,951, Cl. 374-162.000.
Patel Kalyanji U., to Minnesota Mining and Manufacturing Company. Carpet treatment. 4,340,749, Cl. 560-182.000.
Patel, Kirit M.: *See—*
Doshi, Kishore J.; and Patel, Kirit M., 4,340,398, Cl. 55-25.000.
Patriarca, William C.; and McGraw, Leonard J. Semi-automatic bailer plug. 4,340,006, Cl. 114-197.000.
Pattanaik, Surya; and Mizuhara, Howard, to GTE Products Corporation. Multi-layer composite brazing alloy. 4,340,650, Cl. 428-675.000.
Paul Bergsoe and Son A/S: *See—*
Bergsoe, Svend, 4,340,421, Cl. 75-25.000.
Pauli, Jude A.: *See—*
Hargraves, David P.; Pauli, Jude A.; and Williams, Steven E., 4,340,202, Cl. 251-31.000.
Payne, George E.; and Meehan, Richard G., to Kwikform America, Inc. Scaffold frame header. 4,340,130, Cl. 182-179.000.
Payne, John M. Device for electrostatically charging sheet material. 4,340,926, Cl. 361-229.000.
Paysen, Kenneth E.; and Petrovick, James M., to International Business Machines Corporation. Apparatus for enabling corona current measurement. 4,340,855, Cl. 324-72.000.
Peabody Coal Company: *See—*
Gill, Ronald P.; Tucker, Dempsey G.; and Hull, John E., Jr., 4,340,920, Cl. 361-49.000.
Pechhold, Engelbert, to Du Pont de Nemours, E. I., and Company. Oligomeric formal diols of poly(tetramethylene ether) glycol and polyurethanes prepared therefrom. 4,340,719, Cl. 528-230.000.
Peddinghaus, Rolf: *See—*
Wepner, Joachim; Wengenroth, Kurt; and Zuhlke, Jochen, 4,339,972, Cl. 83-13.000.
Pehl, Marilyn A.: *See—*
Howard, William G.; Strohkirch, John C.; and Pehl, Marilyn A., 4,340,651, Cl. 429-101.000.
Pekarek, Gerald P. Squeegee. 4,339,838, Cl. 15-245.000.
Penzien, Klaus: *See—*
Naarmann, Herbert; Naegele, Dieter; Penzien, Klaus; and Schlag, Johannes, 4,340,507, Cl. 252-512.000.
Pepe, Enrico J.: *See—*
Marsden, James G.; and Pepe, Enrico J., 4,340,520, Cl. 523-209.000.
Percival, William S.; and Walters, Peter E., to Picker International Limited. Imaging systems. 4,340,862, Cl. 324-309.000.
Perkin-Elmer Corporation, The: *See—*
Hottes, Carl J., 4,340,264, Cl. 316-19.000.
Permag Corporation: *See—*
Lipschitz, Henry, 4,339,853, Cl. 24-155.0BR.
Perreault, Aime J., to Champlain Cable Corporation. Coaxial cables with foam dielectric. 4,340,773, Cl. 174-107.000.
Personal Products Company: *See—*
Ciencewicki, Evelyn, 4,340,556, Cl. 264-119.000.
Peterson, Stanley G., to Minnesota Mining and Manufacturing Company. Dampener roll cover. 4,339,858, Cl. 29-131.000.
Petke, Frederick D.; and McConnell, Richard L., to Eastman Kodak Company. Polyester adhesive. 4,340,526, Cl. 524-292.000.
Petrovick, James M.: *See—*
Paysen, Kenneth E.; and Petrovick, James M., 4,340,855, Cl. 324-72.000.
Pettersson, Bjorn O. A., to AB Carbox. Method for calibrating tubular articles. 4,339,935, Cl. 72-57.000.
Pettigrew, Alan G.: *See—*
Anson, Michael; Chung, Shin-Ho; and Pettigrew, Alan G., 4,339,954, Cl. 73-657.000.
Petts, Nigel J.: *See—*
Bristow, Ian T.; and Petts, Nigel J., 4,340,337, Cl. 417-304.000.
Pfaff Industriemaschinen GmbH: *See—*
Willenbacher, Erich, 4,340,001, Cl. 112-143.000.
Pfahler, Gerhard: *See—*
Wiezer, Hartmut; and Pfahler, Gerhard, 4,340,534, Cl. 524-99.000.
Pfeifer, Hermann, to Officine Savio, S.p.A. Method and apparatus for cleaning an open-end spinning rotor. 4,339,914, Cl. 57-302.000.
Pfizer Inc.: *See—*
Johnson, Michael R., 4,340,737, Cl. 546-108.000.
Wernau, William C.; and Wernau, William C., 4,340,678, Cl. 435-253.000.
Wernau, William C.; and Wernau, William C., 4,340,678, Cl. 435-253.000.
Wuesthoff, Michael T., 4,340,763, Cl. 568-344.000.
Philip Morris, Incorporated: *See—*
de la Burde, Roger Z.; and Aument, Patrick E., 4,340,073, Cl. 131-291.000.
de la Burde, Roger Z.; Mait, Russell B.; and Utsch, Francis V., 4,340,142, Cl. 209-11.000.
Philipanko, Walt R.: *See—*
Catron, George W., 4,340,402, Cl. 55-487.000.
Phillips, James P., to Motorola, Inc. Dual polarized base station receive antenna. 4,340,891, Cl. 343-713.000.
Phillips Petroleum Company: *See—*
Hitzman, Donald O., 4,340,677, Cl. 435-246.000.
Wiley, Bruce F., 4,339,947, Cl. 73-151.000.
Phillips, Robert F.: *See—*
McIntyre, James A.; Phillips, Robert F.; and Lefevre, Joseph D., 4,340,459, Cl. 204-258.000.
Pich, Claus H.; and Moest, Thomas, to BASF Aktiengesellschaft. Stringently sodium-restricted dietetic salt and its preparation. 4,340,614, Cl. 426-649.000.
Pichette, Carold. Combination fascia and J-trim. 4,339,898, Cl. 52-94.000.
Picker International Limited: *See—*
Percival, William S.; and Walters, Peter E., 4,340,862, Cl. 324-309.000.
Pierce, Donald C. Hand-held cutter for cutting mounting board and the like. 4,339,877, Cl. 30-293.000.
Pierce, June S.: *See—*
Pierce, Larry L.; and Pierce, June S., 4,340,058, Cl. 128-287.000.
Pierce, Larry L.; and Pierce, June S. Sanitary napkin. 4,340,058, Cl. 128-287.000.
Pioneer Electronic Corporation: *See—*
Ikedo, Yuji, 4,340,952, Cl. 369-77.000.
Pisanu, Antonio. Spraying and suction cleansing device. 4,340,365, Cl. 433-80.000.
Pitney Bowes Inc.: *See—*
Cruz-Uribe, Antonio S.; and Check, Frank T., Jr., 4,340,896, Cl. 346-140.00R.
Miller, Peter T., 4,340,897, Cl. 346-140.00R.
Pitzele, Barnett S.: *See—*
Henderson, Richard E. L.; Malek, Nancy J.; Moormann, Alan E.; and Pitzele, Barnett S., 4,340,730, Cl. 536-26.000.
Plastic Forming Company, Inc., The: *See—*
Schurman, Peter T., 4,340,345, Cl. 425-150.000.
Plastic Machinery Corporation: *See—*
Brown, Glenn R.; and McMillan, James S., 4,340,340, Cl. 425-71.000.
Plath, Peter; Eicken, Karl; and Rohr, Wolfgang, to BASF Aktiengesellschaft. N-Halomethylanilides. 4,340,739, Cl. 548-236.000.
Pleva, Harry: *See—*
Bahner, Friedrich; and Pleva, Harry, 4,339,949, Cl. 73-204.000.
Pneumatic Scale Corporation: *See—*
Scully, John W., 4,339,905, Cl. 53-437.000.
Pociluyko, Alex, to Scott Paper Company. Cationic dyestuff printing inks. 4,340,386, Cl. 8-541.000.
Pogany, Stefano A.: *See—*
Bodor, Nicholas S.; Sloan, Kenneth B.; and Pogany, Stefano A., 4,340,603, Cl. 424-301.000.
Polaroid Corporation: *See—*
Bronstein-Bonte, Irena Y.; and Lindholm, Edward P., 4,340,522, Cl. 524-766.000.
Walworth, Vivian K., 4,340,666, Cl. 430-569.000.
Pollock, David C. I.; and Wilson, Malcolm A., to C-I-L Inc. Method for the froth flotation separation and treatment of slowly biodegradable components in waste treatment. 4,340,484, Cl. 210-607.000.
Polychrome Corporation: *See—*
Rowe, William, 4,340,657, Cl. 430-56.000.
Pompon, Jean-Barnard: *See—*
Arnal, Claude; Pompon, Jean-Barnard; and Roullet, Robert, 4,340,722, Cl. 528-480.000.
Poore, Edward C., to General Motors Limited. Internal combustion engine air intake control systems. 4,340,172, Cl. 236-13.000.
Popenko, Alexandr Z.: *See—*
Kucher, Valery N.; Popenko, Alexandr Z.; Reiman, Georgy R.; Durachenko, Mikhail I.; and Zhovtobrjukh, Grigory D., 4,340,445, Cl. 202-262.000.
Porcelli, Richard V.: *See—*
Davidson, Walter C.; and Porcelli, Richard V., 4,340,569, Cl. 423-22.000.
Poss Design Limited: *See—*
Poss, Werner, 4,340,184, Cl. 241-82.300.
Poss, Werner, to Poss Design Limited. Apparatus for mechanical separation of a combination of meat and bone into useful fractions. 4,340,184, Cl. 241-82.300.
Potz, Karl; and Schutz, Rudolf, to Faudi Feinbau GmbH. Arrangement for mounting dividing or separating elements in a filtering water separator. 4,340,476, Cl. 210-232.000.
PPG Industries, Inc.: *See—*
May, Earl L., 4,340,410, Cl. 65-182.300.
May, Earl L., 4,340,411, Cl. 65-182.300.
May, Earl L., 4,340,412, Cl. 65-182.500.
Neubauer, Jeffrey A.; and Reese, Walter J., 4,340,406, Cl. 65-9.000.
PQ Corporation: *See—*
Netting, David I.; Spivack, Bruce D.; and Cunnion, James P., Jr., 4,340,642, Cl. 428-402.000.

Praetorius, Werner: *See—*
Dockner, Toni; Kempe, Uwe; Krug, Herbert; Magnussen, Peter; and Praetorius, Werner, 4,340,745, Cl. 548-347.000.
Schwarz, Helmut; Dockner, Toni; Kempe, Uwe; Krug, Herbert; Praetorius, Werner; Magnussen, Peter; Gallei, Ewald; and Fehr, Erich, 4,340,744, Cl. 548-346.000.
Precipitator Corporation: *See—*
Lindman, William E.; and Alexander, John A., 4,340,473, Cl. 210-173.000.
Precision Metalsmiths, Inc.: *See—*
Bauer, Timothy R., 4,340,107, Cl. 164-35.000.
Precision Monolithics, Inc.: *See—*
Nishikawa, Yukio, 4,340,851, Cl. 323-311.000.
Pressman, John R., to UOP Inc. Annular corrugator. 4,339,936, Cl. 72-77.000.
Preston, Joseph R.: *See—*
Hillenbrand, Louis J.; Preston, Joseph R.; and Berry, David A., 4,340,629, Cl. 428-64.000.
Preziosi, Anthony F.: *See—*
Yee, Kwok C.; Preziosi, Anthony F.; Patel, Gordhanbhai N.; Chance, Ronald R.; Miller, Granville G.; and Baughman, Ray H., 4,339,951, Cl. 374-162.000.
Prichard, Evan S., to Challenge-Cook Bros., Incorporated. Trailer transit mixer. 4,340,309, Cl. 366-62.000.
Priebe, Waldemar: *See—*
Horton, Derek; and Priebe, Waldemar, 4,340,593, Cl. 424-180.000.
Priegnitz, James W.: *See—*
Neuzil, Richard W.; and Priegnitz, James W., 4,340,724, Cl. 536-127.000.
Prince Hotels, Inc.: *See—*
Hashimoto, Hideaki; Abe, Mitsuo; and Morita, Masaharu, 4,340,779, Cl. 179-1.00B.
Procter, James W. Manufacture of ceramic articles. 4,340,555, Cl. 264-65.000.
Proulx, Sylvester E.; and Beneteau, Stanley A., to J. P. Tool, Ltd. Rotary cutting tool and tool driver. 4,340,328, Cl. 408-239.00A.
Puech, Claude: *See—*
Papuchon, Michel; and Puech, Claude, 4,340,272, Cl. 350-96.140.
Pugh, Burton J.: *See—*
Kegel, Richard L.; Pugh, Burton J.; and Steury, Thomas R., 4,340,183, Cl. 239-710.000.
Pusch, Gunter; Aisslinger, Dieter E.; Hoffmann, Alexander; and Pusch, Klaus-Werner. Heat-reflective wall-paper or wall liner. 4,340,634, Cl. 428-134.000.
Pusch, Klaus-Werner: *See—*
Pusch, Gunter; Aisslinger, Dieter E.; Hoffmann, Alexander; and Pusch, Klaus-Werner, 4,340,634, Cl. 428-134.000.
Putetti, Anthony M.: *See—*
Book, Walter R.; and Putetti, Anthony M., 4,339,939, Cl. 72-349.000.
Putt, J. William. Magnetic apparatus for producing movement. 4,340,846, Cl. 318-135.000.
Q-Dot, Inc.: *See—*
Linnenbrink, Thomas E.; and Gradl, David A., 4,340,874, Cl. 333-165.000.
Qualeatti, Gail M.; and Germanas, Dalia, to UOP Inc. Process for the reduction of unsaturated carboxylic acids. 4,340,546, Cl. 260-409.000.
Quarz-Zeit AG: *See—*
Sudler, Roland; and Schwab, Jean-Francois, 4,340,828, Cl. 310-49.00R.
Quella, Ferdinand; and Pape, Heinz, to Siemens Aktiengesellschaft. Signal element without a lamp. 4,340,817, Cl. 250-458.000.
Quis, Peter; and Schroth, Theodor, to Rohm GmbH. Liquid, UV-hardenable coating agent and binder. 4,340,707, Cl. 526-289.000.
Rabinovich, Georgy L.: *See—*
Courty, Philippe; Rabinovich, Georgy L.; Mojaiko, Victor N.; and Le Page, Jean-Francois, 4,340,504, Cl. 252-465.000.
Rabinovich, Grigory B.: *See—*
Chichkin, Valentin P.; Shpigel, Efraim A.; Gokin, Gennady P.; Matjuschenko, Georgy E.; Kurakov, Nikolai N.; Rabinovich, Grigory B.; Samoilovsky, Sergei A.; Angel, Boris S.; Ilienko, Vladimir S.; Miterev, Vladimir P.; Zemlyanov, Leonid S.; and Krutkov, Anatoly F., 4,339,906, Cl. 56-327.00R.
Racal Research Limited: *See—*
Munday, Peter J., 4,340,963, Cl. 371-37.000.
Racek, Alfred. Gas lighter. 4,340,356, Cl. 431-254.000.
Radu, E. John: *See—*
Springett, Charles N.; Abramovich, Dan; Uyeda, Stanley T.; and Radu, E. John, 4,340,322, Cl. 405-168.000.
Raistrick, Ian D.; Godshall, Ned A.; and Huggins, Robert A., to United States of America, Energy. Ternary compound electrode for lithium cells. 4,340,652, Cl. 429-112.000.
Raj, Kuldip: *See—*
Yamamura, Akira; and Raj, Kuldip, 4,340,233, Cl. 277-1.000.
Ramseier, Hansruedi: *See—*
Kuhlmann, Gerhard; Kranzler, Ernst; Baer, Gerhard; Ruetsch, Kurt; Ramseier, Hansruedi; Dubach, Heinz; Lang, Martin; Schwartz, Hans; and Aebi, Hans, 4,340,831, Cl. 310-239.000.
Rao, V. Udaya S.; and Gormley, Robert J., to United States of America, Energy. Catalyst for converting synthesis gas to light olefins. 4,340,503, Cl. 252-459.000.
Rapp, Guenther; Jockers, Kurt; and Thomas, Erwin, to BASF Aktiengesellschaft. Manufacture of hydroxylammonium salts. 4,340,575, Cl. 423-387.000.
Raskin, Jerome S.; Hall, Warren L.; Holt, Charles P.; and Carlson, Gerald E., to Xerox Corporation. Open loop fuser control. 4,340,807, Cl. 219-497.000.
Rattenborg, Christen C. Blood collection syringe. 4,340,067, Cl. 128-763.000.
Ratz, Richard D.: *See—*
Diamond, Allen M.; and Ratz, Richard D., 4,340,307, Cl. 356-418.000.
Raytheon Company: *See—*
Klaus, Benjamin, Jr.; and MacKenzie, Gordon C., 4,339,959, Cl. 74-5.60A.
Sparks, Richard A., 4,340,861, Cl. 324-205.000.
RCA Corporation: *See—*
Chio, Shiu-Shin; and Kim, George A., 4,340,954, Cl. 369-173.000.
Coyle, Peter J., 4,340,803, Cl. 219-56.220.
Hillenbrand, Louis J.; Preston, Joseph R.; and Berry, David A., 4,340,629, Cl. 428-64.000.
Kelleher, Kevin C., 4,340,949, Cl. 369-33.000.
Levin, Leonard J., 4,340,959, Cl. 369-275.000.
Miller, Michael E., 4,340,956, Cl. 369-244.000.
Packer, Marvin; and Black, Otis D., 4,340,167, Cl. 228-180.00R.
Williams, James J., Jr.; and Dischert, Robert A., 4,340,940, Cl. 364-745.000.
Reading-Dorma Closer Corporation: *See—*
Burnett, L. Nelson, Jr., 4,339,843, Cl. 16-62.000.
Realex Corporation: *See—*
Ford, John M. B.; Magers, Wallace F.; and Palmisano, John J., 4,340,158, Cl. 222-321.000.
Reckseit, Bernard S.: *See—*
Heiman, Joseph L.; and Reckseit, Bernard S., 4,340,162, Cl. 225-48.000.
Redifon Simulation Limited: *See—*
Spooner, Archer M., 4,340,274, Cl. 350-128.000.
Spooner, Archer M.; and Murray, Paul M., 4,340,878, Cl. 340-27.00R.
Reeberg, Christiaan. Paint brush accessory. 4,339,837, Cl. 15-169.000.
Reese, Walter J.: *See—*
Neubauer, Jeffrey A.; and Reese, Walter J., 4,340,406, Cl. 65-9.000.
Regan, James. Water heating apparatus, water and heating system and improved boiler. 4,340,174, Cl. 237-19.000.
Reichmann, Wolfgang; Konig, Klaus; and Schonfelder, Manfred, to Bayer Aktiengesellschaft. Process for the preparation of polyisocyanates containing biuret and/or higher polyuret groups and use thereof as synthesis component in the preparation of polyurethane plastics. 4,340,712, Cl. 528-45.000.
Reidel, Josef, to Tox-Dubel-Werk Richard W. Heckhausen KG. Straddling dowel. 4,340,330, Cl. 411-33.000.
Reihl, Robert F.; and Wang, Kang-Lung, to General Electric Company. Method of making low resistance contacts in semiconductor devices by ion induced silicides. 4,339,869, Cl. 29-576.00B.
Reiman, Georgy R.: *See—*
Kucher, Valery N.; Popenko, Alexandr Z.; Reiman, Georgy R.; Durachenko, Mikhail I.; and Zhovtobrjukh, Grigory D., 4,340,445, Cl. 202-262.000.
Reinhard, Fred J.: *See—*
Bankes, Kristen E.; Large, Donald M.; and Reinhard, Fred J., 4,340,323, Cl. 406-83.000.
Reiss, Garry K., to J. B. Foote Foundry Co., The. Ball shift mechanism. 4,340,134, Cl. 192-67.00R.
Research Corporation: *See—*
Woodard, Lynn F., 4,340,588, Cl. 424-92.000.
Research Institute for Iron, Steel and Other Metals of the Tohoku University, The: *See—*
Hirai, Toshio; and Niihara, Koichi, 4,340,568, Cl. 422-245.000.
Resonant Technology Company: *See—*
Gurries, Raymond A., 4,340,255, Cl. 299-37.000.
Reuter, Franz G.; and Hilterhaus, Karl-Heinz, to Reuter Technologie GmbH; and Chemie-Anlagenbau Bischofsheim GmbH. Process for the manufacture of foamed or non-foamed compositions. 4,340,681, Cl. 521-123.000.
Reuter Technologie GmbH: *See—*
Reuter, Franz G.; and Hilterhaus, Karl-Heinz, 4,340,681, Cl. 521-123.000.
Rexnord Inc.: *See—*
Lemke, Gregory D., 4,340,338, Cl. 418-26.000.
Reynolds, James H.: *See—*
Adams, V. Dean; and Reynolds, James H., 4,340,489, Cl. 210-718.000.
Reynolds Metals Company: *See—*
Mitchell, Randolph N., 4,339,934, Cl. 72-17.000.
Reznik, Barry D. Method for fixturing workpieces for heat effected joining of same. 4,339,867, Cl. 29-559.000.
Rhone-Poulenc Agrochimie: *See—*
Cordier, Georges, 4,340,759, Cl. 564-412.000.
Theissen, Robert J., 4,340,417, Cl. 71-91.000.
Rhone-Poulenc Industries: *See—*
Bonnebat, Claude; Roullet, Gilbert; and Vaginay, Yves, 4,340,721, Cl. 528-272.000.
Deleuil, Michel, 4,340,521, Cl. 524-2.000.
Rice, Catherine E.: *See—*
Beni, Gerardo; Rice, Catherine E.; and Shay, Joseph L., 4,340,278, Cl. 350-357.000.
Riedel, Peter. Movable wall for a pneumatic booster. 4,339,990, Cl. 92-99.000.

Rietvink, Adrianus H.: *See*—
van Weelden, Jan H.; and Rietvink, Adrianus H., 4,340,401, Cl. 55-305.000.

Rinderle, Heinz: *See*—
Malinowski, Christopher W.; and Rinderle, Heinz, 4,340,864, Cl. 328-133.000.

Rinnai Kabushiki Kaisha Rinnai Corporation: *See*—
Kito, Michimasa; and Nomura, Toshiyuki, 4,340,357, Cl. 431-328.000.

Ris, George E.: *See*—
Ott, Conrad L.; and Ris, George E., 4,340,265, Cl. 339-14.00R.

Riutta, Irving. Device for lowering ceramic liners into a chimney. 4,340,248, Cl. 294-93.000.

Rizzo, Salvatore P.; and LaPlante, William J., to Texas Instruments Incorporated. Mask for an attachable, circuit-terminating, circuit board edge member. 4,340,164, Cl. 228-57.000.

RJR Foods, Inc.: *See*—
Nioras, Robert L., 4,340,610, Cl. 426-88.000.

Robbins, Edward L.; and Forster, Robert S. Number generating device and gaming apparatus incorporating same. 4,340,228, Cl. 273-138.00R.

Robbins, Edward S., Jr. Mat anchoring apparatus and method. 4,340,633, Cl. 428-99.000.

Robert Bosch GmbH: *See*—
Anlauf, Jurgen; and Jonner, Wolf-Dieter, 4,340,935, Cl. 364-426.000.
Herden, Werner; 4,340,877, Cl. 338-42.000.
Kuhlmann, Gerhard; Kranzler, Ernst; Baer, Gerhard; Ruetsch, Kurt; Ramseier, Hansruedi; Dubach, Heinz; Lang, Martin; Schwartz, Hans; and Aebi, Hans, 4,340,831, Cl. 310-239.000.
Kuhn, Edgar, 4,340,849, Cl. 322-28.000.
Stumpp, Gerhard; Eblen, Ewald; Hofmann, Karl; Amaya, Nestor R.; Schlagenhauf, Josef; and Kopse, Odon, 4,340,181, Cl. 239-533.300.

Roberts, John S., to Kling-Tecs, Inc. Melt spinning solution dyed filaments and improved spin pack therefor. 4,340,552, Cl. 264-39.000.

Roberts, Peter B.: *See*—
White, David J.; and Roberts, Peter B., 4,339,924, Cl. 60-733.000.

Robertson, Joseph D. Scrap recovery system. 4,340,347, Cl. 425-217.000.

Robinson, Curtiss W.; and Clingman, Wilbur D., to Boeing Company, The. Internal body mounted system for isolation of, in one degree of freedom, a beam projected from an optical system which is subject to rotational vibration. 4,340,271, Cl. 350-16.000.

Robinson, Frederick J.; and Tracy, Clarence J., to Motorola, Inc. Method for detecting the end point of a plasma etching reaction. 4,340,456, Cl. 204-192.00E.

Robinson, Martin A.: *See*—
Anello, Louis G.; Eibeck, Richard E.; and Robinson, Martin A., 4,340,548, Cl. 260-544.00Y.

Robinson-Todd, David W., to Stablex A.G. Process for disposal of ammonium jarosite. 4,340,396, Cl. 23-293.00R.

Rockwell International Corporation: *See*—
Massie, Norbert A., 4,340,304, Cl. 356-351.000.

Roddy, Joseph T., to Emerson Electric Co. Process of die casting with a particulate inert filler uniformly dispersed through the casting. 4,340,109, Cl. 164-97.000.

Rodriguez, Silvio A.; and Catino, Sigmund C., deceased (by Catino, Esther E., executor), to Sandoz, Inc. Stable, concentrated, aqueous compositions containing para-sulfophenyl-azo-substituted 1,4-phenylene-azo-para-2-hydroxypropoxyphenyl dyes. 4,340,385, Cl. 8-527.000.

Rody, Jean, to Ciba-Geigy Corporation. Novel stabilizers. 4,340,533, Cl. 524-99.000.

Roe, David B.: *See*—
DeCosta, John; Mallos, James B.; and Roe, David B., 4,340,777, Cl. 178-18.000.

Roederer, Charles: *See*—
Vayssiere, Pierre; Roederer, Charles; Grosjean, Jean-Claude; Grave, Roland; Schleimer, F.; Goedert, F.; Henrion, R.; Lorang, L.; and Colling, J., 4,340,208, Cl. 266-220.000.

Rogers Holster Co., Inc.: *See*—
Rogers, William H., 4,340,437, Cl. 156-224.000.

Rogers, John R.: *See*—
Bloch, Daniel R.; Odders, Charles N.; and Rogers, John R., 4,340,057, Cl. 128-284.000.

Rogers, William H., to Rogers Holster Co., Inc. Method of producing a moisture-insensitive molded leather holster. 4,340,437, Cl. 156-224.000.

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Quis, Peter; and Schroth, Theodor, 4,340,707, Cl. 526-289.000.

Rohner AG Pratteln: *See*—
Wegmann, Jacques, 4,340,531, Cl. 524-556.000.

Rohr Industries, Inc.: *See*—
Lawson, Dale W. R., 4,340,178, Cl. 239-265.310.

Rohr, Wolfgang: *See*—
Plath, Peter; Eicken, Karl; and Rohr, Wolfgang, 4,340,739, Cl. 548-236.000.

Rohser, Helmut, to Hoechst Aktiengesellschaft. Process for simultaneous dyeing and bonding of sewing silks made from polyester filaments. 4,340,383, Cl. 8-494.000.

Roma, Carlo, to SQUARE S.A. Plant for retorting oil products contained in shales and sands. 4,340,444, Cl. 202-99.000.

Romanov, Leonid M.: *See*—
Grishin, Boris P.; Gruznov, Alexandr G.; Romanov, Leonid M.; Vishnyak, Julian I.; Shugaeva, Nina A.; Bychkov, Nikolai M.; Lipets, Konstantin V.; and Zotov, Alexandr I., 4,340,720, Cl. 528-232.000.

Romashov, Alexandr A.; Levinsky, Gennady E.; Ivantsov, Vladimir Y.; Astakhov, Igor A.; and Kuznetsov, Vladimir A. Apparatus for removal of internal flash from electric-welded pipes. 4,340,163, Cl. 228-19.000.

Roos, Ernst: *See*—
Schubart, Rudiger; Eholzer, Ulrich; Kempermann, Theo; and Roos, Ernst, 4,340,695, Cl. 525-350.000.

Rossert, Michael; and Dhein, Rolf, to Bayer Aktiengesellschaft. Process for the preparation of maleinate oils. 4,340,688, Cl. 525-256.000.

Rosso, John B., to Combustion Engineering, Inc. Net oil computer. 4,340,938, Cl. 364-510.000.

Roueche, Armand, to Ciba-Geigy Corporation. Azo pigments, process for their production and their use. 4,340,430, Cl. 106-176.000.

Roullet, Gilbert: *See*—
Bonnebat, Claude; Roullet, Gilbert; and Vaginay, Yves, 4,340,721, Cl. 528-272.000.

Roullet, Robert: *See*—
Arnal, Claude; Pompon, Jean-Barnard; and Roullet, Robert, 4,340,722, Cl. 528-480.000.

Rowe, William, to Polychrome Corporation. Novel radiation-sensitive articles. 4,340,657, Cl. 430-56.000.

Rowland, Roger G., to E. R. Lattimer Limited. Transfer mechanism in a glassware forming machine. 4,340,413, Cl. 65-375.000.

RSP Co.: *See*—
Erb, Robert A., 4,340,056, Cl. 128-272.100.

Rubin, Lawrence M.: *See*—
Bilane, Glenn B.; Rubin, Lawrence M.; Soffa, Albert; and Vilenski, Dan, 4,340,166, Cl. 228-179.000.

Rudolph, Richard G.: *See*—
Konikoff, Robert S. K.; Rudolph, Richard G.; and Gill, George H., 4,340,929, Cl. 362-153.000.

Rudy, Marion F. Diffusion pumping apparatus self-inflating device. 4,340,626, Cl. 428-35.000.

Ruell, Hartwig, to Siemens Corporation. Input sensor unit for a fingerprint identification system. 4,340,300, Cl. 356-71.000.

Ruetsch, Kurt: *See*—
Kuhlmann, Gerhard; Kranzler, Ernst; Baer, Gerhard; Ruetsch, Kurt; Ramseier, Hansruedi; Dubach, Heinz; Lang, Martin; Schwartz, Hans; and Aebi, Hans, 4,340,831, Cl. 310-239.000.

Rugh, Clyde J.; and King, John L., Jr., to MWA Company. Spindle bearing and lubrication system. 4,340,262, Cl. 308-187.000.

Russ, Paul E., Sr., to Gates Rubber Company, The. V-Block component and belt. 4,340,378, Cl. 474-244.000.

Russotti, Enzo. Foldable support for continuous background for use in photographing objects. 4,340,293, Cl. 354-291.000.

Rusz, Tibor: *See*—
Levy, Donald; and Rusz, Tibor, 4,340,044, Cl. 128-204.210.

S. C. Johnson & Son, Inc.: *See*—
Bloch, Daniel R.; Odders, Charles N.; and Rogers, John R., 4,340,057, Cl. 128-284.000.

Sabec, Charles J.: *See*—
Jobling, Lancelot A.; Sabec, Charles J.; and Stump, Ronald C., 4,339,919, Cl. 60-322.000.

Sabo, Bert M.: *See*—
Vadas, Leslie; and Sabo, Bert M., 4,340,367, Cl. 433-89.000.

Saco Tanning Division of Kirstein Leather Co.: *See*—
Cartier, James E., 4,340,571, Cl. 423-53.000.

Sagami Chemical Research Center: *See*—
Tsuchihashi, Genichi; Mitamura, Shuichi; and Ogura, Katsuyuki, 4,340,740, Cl. 548-169.000.

Saint Gobain Vitrage: *See*—
Sauer, Gerd, 4,340,813, Cl. 250-221.000.

Saito, Isamu; and Watanabe, Hiroyuki. Toy wth interlocking object and obstacle. 4,340,219, Cl. 273-1.0GA.

Saito, Masato: *See*—
Tsuchihashi, Michihiro; Saito, Masato; Baba, Keiichi; and Matsushima, Yusaku, 4,340,844, Cl. 315-283.000.

Saito, Susumu, to Shinku Laboratory Co., Ltd. Method for plating rollers and apparatus for mounting rollers utilized in the method. 4,340,450, Cl. 204-25.000.

Saitoh, Shigemitsu: *See*—
Endo, Tadakazu; and Saitoh, Shigemitsu, 4,340,631, Cl. 428-89.000.

Saitou, Sinichi, to Olympus Optical Co., Ltd. Tape cassette. 4,340,194, Cl. 242-199.000.

Sakai, Katsumi: *See*—
Endo, Takeshi; Sakai, Katsumi; Chou, Kiyoaki; Inamoto, Yoshitaka; and Teshigawara, Haruhiko, 4,340,728, Cl. 536-23.000.

Sakai, Kazuo: *See*—
Akiba, Shigeyuki; Suematsu, Yasuharu; Arai, Shigehisa; Kodaira, Masanobu; Itaya, Yoshio; Iga, Kenichi; Ota, Chuichi; Yamamoto, Takaya; and Sakai, Kazuo, 4,340,966, Cl. 372-45.000.

Sakaue, Takashi; Hatta, Koichi; Fukusaki, Megumi; and Kataoka, Yoshiro, to Sharp Kabushiki Kaisha. Electronic learning aid. 4,340,375, Cl. 434-201.000.

Sakoda, Akinori: *See*—
Tanaka, Yoshio; Togawa, Susumu; and Sakoda, Akinori, 4,340,361, Cl. 432-128.000.

Sakshaug, Eugene C.: *See*—
Kresge, James S.; and Sakshaug, Eugene C., 4,340,924, Cl. 361-127.000.

Salyers, Edward F., to Cabot Corporation. Acoustical laminate construction and attenuated systems comprising same. 4,340,129, Cl. 181-200.000.

Salzgitter Maschinen und Anlagen Aktiengesellschaft: *See*—
Manten, Heinrich, 4,340,122, Cl. 175-78.000.
Samoilovsky, Sergei A.: *See*—
Chichkin, Valentin P.; Shpigel, Efraim A.; Gokin, Gennady P.; Matjuschenko, Georgy E.; Kurakov, Nikolai N.; Rabinovich, Grigory B.; Samoilovsky, Sergei A.; Angel, Boris S.; Ilienko, Vladimir S.; Miterev, Vladimir P.; Zemlyanov, Leonid S.; and Krutkov, Anatoly F., 4,339,906, Cl. 56-327.00R.
Sandhu, Mohammad A.: *See*—
Martin, Thomas W.; Sandhu, Mohammad A.; and Savage, Dennis J., 4,340,454, Cl. 204-159.160.
Sando Iron Works Co., Ltd.: *See*—
Sando, Yoshikazu; Ishidoshiro, Hiroshi; and Minakata, Matsuo, 4,339,856, Cl. 28-155.000.
Sando, Yoshikazu; Ishidoshiro, Hiroshi; and Minakata, Matsuo, to Sando Iron Works Co., Ltd. Apparatus for continuous untwisting and crimping of a cloth. 4,339,856, Cl. 28-155.000.
Sandoz, Inc.: *See*—
Rodriguez, Silvio A.; and Catino, Sigmund C., deceased, 4,340,385, Cl. 8-527.000.
Sandoz Ltd.: *See*—
Troxler, Franz; and Seemann, Fritz, 4,340,541, Cl. 548-503.000.
Sandri, Joseph M.; Calentine, John W.; Linder, Seymour M.; and Billioux, Yves J., to Alcolac Inc. Derivatives of mono-(alkylene ureido alkyl) ureas, and bis-(alkylene ureido alkyl) ureas. 4,340,743, Cl. 548-318.000.
Sanik, Paul S.: *See*—
Beckman, John T.; and Sanik, Paul S., 4,340,965, Cl. 371-62.000.
Sankyo Electric Company Limited: *See*—
Hiraga, Masaharu; and Terauchi, Kiyoshi, 4,340,339, Cl. 418-55.000.
Sano, Jun-ichi, to GTE Laboratories Incorporated. Inverter amplifier. 4,340,867, Cl. 330-277.000.
Santa Fe International Corporation: *See*—
Springett, Charles N.; Abramovich, Dan; Uyeda, Stanley T.; and Radu, E. John, 4,340,322, Cl. 405-168.000.
Santen, Sven; and Edstrom, John O., to SKF Steel Engineering Aktiebolag. Method of manufacturing stainless steel. 4,340,420, Cl. 75-10.00R.
Sarcia, Domenico S., to Oerlikon-Burhle U.S.A. Inc. Gas-driven fluid flow control valve and cryopump incorporating the same. 4,339,927, Cl. 62-6.000.
Sargent Mfg. Co., Inc.: *See*—
Kegel, Richard L.; Pugh, Burton J.; and Steury, Thomas R., 4,340,183, Cl. 239-710.000.
Sarui, Kiichiro. Molded body comprising vegetable oil for generating aerosol for treating athlete's foot. 4,340,053, Cl. 128-260.000.
Sasaki Kabushiki Kaisha: *See*—
Sasaki, Kyozo, 4,339,830, Cl. 2-19.000.
Sasaki, Kyozo, to Sasaki Kabushiki Kaisha. Baseball glove. 4,339,830, Cl. 2-19.000.
Sasaki, Shigeo: *See*—
Tabei, Seikichi; and Sasaki, Shigeo, 4,340,426, Cl. 75-257.000.
Sato, Kouji, to Tokyo Shibaura Denki Kabushiki Kaisha. Surface acoustic wave resonator device. 4,340,834, Cl. 310-313.00D.
Sato, Kozo. Fluid antioxidant. 4,340,643, Cl. 428-403.000.
Sato, Tomoyasu: *See*—
Tomita, Fusao; Matsuda, Yuzura; Shirahata, Kunikatsu; Takahashi, Keiichi; Nakano, Hirofumi; Sato, Tomoyasu; Okubo, Shuji; and Nakamura, Nobuo, 4,340,725, Cl. 536-1.100.
Sato, Yoji: *See*—
Suzuki, Suzuo; Nakagawa, Yasuhiko; Aihara, Hisamoto; Matsumoto, Yasuo; and Sato, Yoji, 4,340,024, Cl. 123-538.000.
Sauer, Gerd, to Saint Gobain Vitrage. Switch panel with touch switches. 4,340,813, Cl. 250-221.000.
Sauers, Marvin E.: *See*—
Gross, Laurence H.; and Sauers, Marvin E., 4,340,562, Cl. 264-328.200.
Savage, Dennis J.: *See*—
Martin, Thomas W.; Sandhu, Mohammad A.; and Savage, Dennis J., 4,340,454, Cl. 204-159.160.
Savin Corporation: *See*—
Landa, Benzion, 4,340,312, Cl. 400-118.000.
Savino, Dominick J. Staple and anviless stapling apparatus therefor. 4,340,331, Cl. 411-457.000.
Sawazaki, Norikazu: *See*—
Iwamura, Soichi; Nishida, Yasuaki; Yamato, Toshimi; Sawazaki, Norikazu; Nishi, Yoshio; Watanabe, Masaharu; and Endo, Norio, 4,340,953, Cl. 369-126.000.
Sbuelz, Anes, to Italtel Societa Italiana Telecomunicazioni S.p.A. Method of and system for measuring electrical characteristics of circuit elements included in time-sharing telecommunication network. 4,340,788, Cl. 179-175.30R.
Scalera, Michael, to Bell Telephone Laboratories, Incorporated. Sneak current protector module. 4,340,268, Cl. 339-18.00R.
Scanlon, Michael J.: *See*—
Wang, Samuel S.; and Scanlon, Michael J., 4,340,467, Cl. 209-166.000.
Scannell, John W.: *See*—
Bazarian, Albert; Scannell, John W.; and Andersen, Clifford H., 4,340,923, Cl. 361-120.000.
Schaeffer, Georg: *See*—
Semler, Gunther; and Schaeffer, Georg, 4,340,746, Cl. 549-78.000.
Schansman, Raymond R.: *See*—
McQueen, Wayne F.; Schansman, Raymond R.; Hurd, William A.; Fischer, Joerg; and Dunn, Billy W., 4,340,784, Cl. 179-6.120.
Schanz, Johannes, to ITT Industries, Inc. Brake booster for an automotive vehicle. 4,339,921, Cl. 60-547.00R.
Schar, Anton. Nailing tool. 4,340,101, Cl. 145-30.00R.
Schechter, Robert S.: *See*—
Breland, William M.; Guilinger, Terry R.; and Schechter, Robert S., 4,340,253, Cl. 299-5.000.
Schein, Eberhard, to Hoechst Aktiengesellschaft. Preparations for the treatment of theileriosis and their use. 4,340,596, Cl. 424-251.000.
Schenek, Anton: *See*—
Ali, Ramadan A.; Muller, Heinz; Lehmann, Karl-Heinz; Artzt, Peter; and Schenek, Anton, 4,339,910, Cl. 57-411.000.
Schering AG: *See*—
Kruger, Hans-Rudolf, 4,340,742, Cl. 548-255.000.
Schering Corporation: *See*—
Gold, Elijah H.; Berger, Joel G.; and Chang, Wei K., 4,340,597, Cl. 424-256.000.
Schiffer, Peter; Heinrichs, Ernst; and Helten, Manfred, to Kernforschungsanlage Julich GmbH. Method of and apparatus for remotely controlling orifice-opening and orifice-closing operations. 4,340,077, Cl. 137-68.00A.
Schiller, Julian G.; Wingard, Lemuel B., Jr.; and Liu, Chung-Chiun, to University of Pittsburgh. Potentiometric detection of hydrogen peroxide and apparatus therefor. 4,340,448, Cl. 204-1.00T.
Schippers, Heinz; Hufer, Norbert; Munnekehoff, Gerd; and Teich, Udo, to Barmag Barmer Maschinenfabrik. Bobbin changing apparatus. 4,340,187, Cl. 242-35.50A.
Schippers, Heinz: *See*—
Dammann, Peter; Schippers, Heinz; and Bauer, Karl, 4,339,915, Cl. 57-339.000.
Schlag, Johannes: *See*—
Naarmann, Herbert; Naegele, Dieter; Penzien, Klaus; and Schlag, Johannes, 4,340,507, Cl. 252-512.000.
Schlagenhauf, Josef: *See*—
Stumpp, Gerhard; Eblen, Ewald; Hofmann, Karl; Amaya, Nestor R.; Schlagenhauf, Josef; and Kopse, Odon, 4,340,181, Cl. 239-533.300.
Schleimer, F.: *See*—
Vayssiere, Pierre; Roederer, Charles; Grosjean, Jean-Claude; Grave, Roland; Schleimer, F.; Goedert, F.; Henrion, R.; Lorang, L.; and Colling, J., 4,340,208, Cl. 266-220.000.
Schlumberger Technology Corporation: *See*—
Segesman, Francis F., 4,340,934, Cl. 364-422.000.
Schmidt Manufacturing, Inc.: *See*—
Thompson, Robert E.; and McNinney, Richard P., 4,339,897, Cl. 51-436.000.
Schmolke, Karl-Heinz, to Hollingsworth GmbH. Beater roll for open-end spinning machines. 4,339,851, Cl. 19-97.000.
Schnier, Egon, to Oldenburger Betonsteinwerke GmbH. Gripper unit for clamping and aligning a layer of concrete paving bricks with compound elements for forming a stretcher bond of the bricks into a setting unit. 4,340,247, Cl. 294-63.00R.
Schonfelder, Manfred: *See*—
Reichmann, Wolfgang; Konig, Klaus; and Schonfelder, Manfred, 4,340,712, Cl. 528-45.000.
Schott, Ottfried, to Siemens Aktiengesellschaft. Method of producing tomograms with x-rays or similarly penetrating radiation. 4,340,816, Cl. 250-445.00T.
Schreurs, Willy P., to North American Philips Corporation. Method of providing a universal coating for fluorescent lamps. 4,340,512, Cl. 523-122.000.
Schroers, Otto: *See*—
Hubner, Wolfgang; Schroers, Otto; and Sladeck, Hans J., 4,340,525, Cl. 252-8.55B.
Schroth, Theodor: *See*—
Quis, Peter; and Schroth, Theodor, 4,340,707, Cl. 526-289.000.
Schubart, Rudiger; Eholzer, Ulrich; Kempermann, Theo; and Roos, Ernst, to Bayer Aktiengesellschaft. Vulcanization system, rubber mixture containing said system and a process of vulcanization. 4,340,695, Cl. 525-350.000.
Schubert & Salzer: *See*—
Ali, Ramadan A.; Muller, Heinz; Lehmann, Karl-Heinz; Artzt, Peter; and Schenek, Anton, 4,339,910, Cl. 57-411.000.
Hofmann, Eberhard, 4,339,911, Cl. 57-416.000.
Schulke, Karl-Albert: *See*—
Herzog, Heinz; Mohn, Heinrich; Schulke, Karl-Albert; and Grzybowski, Holger, 4,340,627, Cl. 428-36.000.
Schulz, Helmut, to Brandenberg Energy Corporation. Slagging gasifier. 4,340,397, Cl. 48-74.000.
Schupp, Eberhard; Kempter, Fritz E.; and Gulbins, Erich, to BASF Aktiengesellschaft. Preparation of curable polyadducts, containing basic nitrogen groups, and use of the products. 4,340,714, Cl. 528-99.000.
Schupp, Eberhard: *See*—
Kempter, Fritz E.; and Schupp, Eberhard, 4,340,455, Cl. 204-181.00C.
Schupp, Lewis J., to General Electric Company. Internal shunt for series connected lamps. 4,340,841, Cl. 315-75.000.
Schurman, Peter T., to Plastic Forming Company, Inc., The. Apparatus for preparing a parison and transferring it to a molding machine. 4,340,345, Cl. 425-150.000.
Schurter, Rolf: *See*—
Laanio, Verena; Fory, Werner; and Schurter, Rolf, 4,340,415, Cl. 71-76.000.
Laanio, Verena; Fory, Werner; and Schurter, Rolf, 4,340,747, Cl. 560-102.000.

Schutz, Rudolf: *See*—
Potz, Karl; and Schutz, Rudolf, 4,340,476, Cl. 210-232.000.
Schutzer, Bjorn E. Training apparatus for skaters. 4,340,214, Cl. 272-70.000.
Schuurink, Pieter H. J.: *See*—
Kik, Leendert A.; Schuurink, Pieter H. J.; and De Vries, Marinus J., 4,340,622, Cl. 427-299.000.
Schwab, Jean-Francois: *See*—
Sudler, Roland; and Schwab, Jean-Francois, 4,340,828, Cl. 310-49.00R.
Schwab, Kurt, to D. Swarovski & Co. Retroreflector plate and a method for its manufacture. 4,340,301, Cl. 350-106.000.
Schwartz, Bertram: *See*—
Dixon, Richard W.; and Schwartz, Bertram, 4,340,967, Cl. 372-46.000.
Schwartz, Hans: *See*—
Kuhlmann, Gerhard; Kranzler, Ernst; Baer, Gerhard; Ruetsch, Kurt; Ramseier, Hansruedi; Dubach, Heinz; Lang, Martin; Schwartz, Hans; and Aebi, Hans, 4,340,831, Cl. 310-239.000.
Schwartzkopf, George, Jr.: *See*—
Gray, Gary M.; Schwartzkopf, George, Jr.; and J. T. Baker Chemical Co., 4,340,765, Cl. 71-123.000.
Schwarz, Anton. Oil burner. 4,340,354, Cl. 431-12.000.
Schwarz, Helmut; Dockner, Toni; Kempe, Uwe; Krug, Herbert; Praetorius, Werner; Magnussen, Peter; Gallei, Ewald; and Fehr, Erich, to BASF Aktiengesellschaft. Preparation of imidazoles. 4,340,744, Cl. 548-346.000.
SCM Corporation: *See*—
Hoyer-Ellefsen, Sigurd, 4,340,830, Cl. 310-89.000.
Pate, Daniel R.; Delaney, Robert R.; and Shuleva, John J., 4,340,547, Cl. 260-428.500.
Scognamiglio, Agostino: *See*—
Campanile, Armando; Carlomagno, Giovanni M.; De Vita, Angelo; Donsi, Giorgio; Massimilla, Leopoldo; and Scognamiglio, Agostino, 4,340,400, Cl. 55-269.000.
Scordo, Dominick, to Bell Telephone Laboratories, Incorporated. Smooth pulse sequence generator. 4,340,863, Cl. 328-63.000.
Scotland, James M.: *See*—
Laverick, Robert G.; and Scotland, James M., 4,340,447, Cl. 203-36.000.
Scott, George K. Log splitter and attachment for tractor. 4,340,098, Cl. 144-193.00A.
Scott, Kenneth W. Clip for slip-joint tube connections. 4,340,244, Cl. 285-8.000.
Scott Paper Company: *See*—
Pociluyko, Alex, 4,340,386, Cl. 8-541.000.
Sears, Ralph E.: *See*—
Cheetham, Robert A.; and Sears, Ralph E., 4,340,832, Cl. 310-239.000.
Seemann, Fritz: *See*—
Troxler, Franz; and Seemann, Fritz, 4,340,541, Cl. 548-503.000.
Segars, Ronald A., to United States of America, Army. Temperature responsive control circuit. 4,340,850, Cl. 323-218.000.
Segesman, Francis F., to Schlumberger Technology Corporation. Method of generating subsurface characteristic models. 4,340,934, Cl. 364-422.000.
Seibold, Paul F.; and Haberstump, Alfred H. Pullable golf club receptacle. 4,340,236, Cl. 280-38.000.
Seino, Kuniki; and Ozaki, Yoshihiro, to Minolta Camera Kabushiki Kaisha. Electrophotographic copying method with residual charge erasing step. 4,340,656, Cl. 430-48.000.
Seitetsu Kagaku Co., Ltd.: *See*—
Obayashi, Shigeji; Nakamura, Morio; Fujiki, Koichi; and Yamamoto, Takushi, 4,340,706, Cl. 526-207.000.
Sekine, Kenji: *See*—
Matsukawa, Nobuo; and Sekine, Kenji, 4,340,290, Cl. 354-173.000.
Sellberg, Ronald P.: *See*—
Brodeur, Rene H.; Terlecky, Boris S.; Sellberg, Ronald P.; and Halliar, William R., 4,339,996, Cl. 105-3.000.
Selleri, Narciso, to Finike Italiana Marposs, S.p.A. Method for adjusting the position of the probes of a plug gauge and relevant plug gauge. 4,339,879, Cl. 33-178.00E.
Seltenrijch, Johannes C.: *See*—
den Toonder, Pieter; Seltenrijch, Johannes C.; Stubbs, Graham S.; Fondse, Pieter J.; and Jirka, Howard F., 4,340,906, Cl. 358-124.000.
Selva, Domenica: *See*—
Toja, Emilio; Omodei-Sale, Amedeo; and Selva, Domenica, 4,340,607, Cl. 424-273.00B.
Semler, Gunther; and Schaeffer, Georg, to Hoechst Aktiengesellschaft. Process for the preparation of thiochloroformates. 4,340,746, Cl. 549-78.000.
Senaha, Susumu: *See*—
Ohno, Akira; Katayama, Shitomi; Nomura, Suguru; Senaha, Susumu; Kyo, Suizo; Shimomura, Susumu; Akagami, Akira; and Imai, Hiroshi, 4,340,646, Cl. 428-429.000.
Senft, James R., to Sunpower, Inc. Drive mechanism for Stirling engine displacer and piston and other reciprocating bodies. 4,339,960, Cl. 74-50.000.
Senyek, Michael L.: *See*—
Lal, Joginder; and Senyek, Michael L., 4,340,690, Cl. 525-271.000.
Lal, Joginder; and Senyek, Michael L., 4,340,691, Cl. 525-271.000.
Lal, Joginder; and Senyek, Michael L., 4,340,705, Cl. 526-139.000.
Seregely, Daniel W. Method of forming interlocking pipe joint. 4,339,864, Cl. 29-450.000.
Seroskie, James M., to Martin Marietta Corporation. Scan linerization method and device. 4,340,888, Cl. 340-755.000.
Seybold, Guenther: *See*—
Eilingsfeld, Heinz; Hansen, Guenter; and Seybold, Guenther, 4,340,537, Cl. 260-158.000.
Seymour, Donald E., to Smith & Nephew Research Ltd. Adhesive-coated sheet material incorporating anti-bacterial substances. 4,340,043, Cl. 128-132.00D.
Shah, Nayan S., to Sherwood Medical Industries Inc. Medical device for collecting a body sample. 4,340,066, Cl. 128-749.000.
Shahbabian, Set: *See*—
Kees, George, Jr.; and Shahbabian, Set, 4,340,061, Cl. 128-325.000.
Shapiro, Myron: *See*—
Legue, Norris R.; and Shapiro, Myron, 4,340,682, Cl. 524-507.000.
Sharkey, Richard L.: *See*—
Chandley, George D.; and Sharkey, Richard L., 4,340,108, Cl. 164-63.000.
Sharp Kabushiki Kaisha: *See*—
Sakaue, Takashi; Hatta, Koichi; Fukusaki, Megumi; and Kataoka, Yoshiro, 4,340,375, Cl. 434-201.000.
Yamaguchi, Masumi; Kawabata, Kenji; and Kumagai, Yoshimi, 4,340,796, Cl. 219-10.55B.
Shatters, Dale R., to Caterpillar Tractor Co. Assembly for holding open a door or the like. 4,339,844, Cl. 16-82.000.
Shauger, Herbert A., to Fischer & Porter Co. Analog-to-digital converter for electromagnetic flowmeter. 4,339,958, Cl. 73-861.170.
Shaw, Bon F.: *See*—
Marshall, Albert H.; Shaw, Bon F.; Grimmer, Paul D.; Towle, Herbert C.; and Bond, Gary M., 4,340,370, Cl. 434-22.000.
Shaw, James K. Abacus chess game. 4,340,232, Cl. 273-260.000.
Shaw, Mark L., to Motorola, Inc. Auxiliary steering wheel command system. 4,340,824, Cl. 307-115.000.
Shay, Joseph L.: *See*—
Beni, Gerardo; Rice, Catherine E.; and Shay, Joseph L., 4,340,278, Cl. 350-357.000.
Sheller Globe Corporation: *See*—
McCoy, Billy R., 4,340,829, Cl. 310-71.000.
Shen, Jian-Kuo: *See*—
Miu, Ming T.; Bradley, John J.; Panepinto, William, Jr.; and Shen, Jian-Kuo, 4,340,933, Cl. 364-200.000.
Sheng-Jung, Tseng. Remote control fishing device with automatic line retrieval. 4,339,888, Cl. 43-26.100.
Shephard, Kenneth P., to Upjohn Company, The. Process for producing 6α-fluoro-$\Delta^{1,4}$-3-keto steroids. 4,340,538, Cl. 260-239.55D.
Sherwood Medical Industries Inc.: *See*—
Shah, Nayan S., 4,340,066, Cl. 128-749.000.
Shibata, Tooru: *See*—
Takeuchi, Yasumasa; Obata, Yutaka; Ohshima, Noboru; Shibata, Tooru; and Nakako, Kaoru, 4,340,685, Cl. 525-247.000.
Shima Idea Center, Co., Ltd.: *See*—
Inoue, Hideo, 4,339,933, Cl. 66-69.000.
Shimada, Sachio; and Ohwada, Yoshiaki, to Sony Corporation. Flyer-type coil winding machine. 4,340,186, Cl. 242-7.05B.
Shimizu, Isamu: *See*—
Inoue, Eiichi; and Shimizu, Isamu, 4,340,658, Cl. 430-58.000.
Shimizu, Takayoshi: *See*—
Katoh, Koshi; and Shimizu, Takayoshi, 4,340,424, Cl. 75-126.00E.
Shimomura, Susumu: *See*—
Ohno, Akira; Katayama, Shitomi; Nomura, Suguru; Senaha, Susumu; Kyo, Suizo; Shimomura, Susumu; Akagami, Akira; and Imai, Hiroshi, 4,340,646, Cl. 428-429.000.
Shimoyama, Hiroshi: *See*—
Watanabe, Masaki; Shimoyama, Hiroshi; and Suzuki, Keiji, 4,340,125, Cl. 180-215.000.
Shinagawa Refractories Co., Ltd.: *See*—
Hoedl, Fritz; Kimura, Morihiro; and Yasuda, Yoshio, 4,340,360, Cl. 432-119.000.
Shinku Laboratory Co., Ltd.: *See*—
Saito, Susumu, 4,340,450, Cl. 204-25.000.
Shionogi & Co., Ltd.: *See*—
Kondo, Eiji; Mitsugi, Takashi; Fujiwara, Tamio; and Muneyuki, Ryonosuke, 4,340,672, Cl. 435-45.000.
Shirahata, Kunikatsu: *See*—
Tomita, Fusao; Matsuda, Yuzura; Shirahata, Kunikatsu; Takahashi, Keiichi; Nakano, Hirofumi; Sato, Tomoyasu; Okubo, Shuji; and Nakamura, Nobuo, 4,340,725, Cl. 536-1.100.
Shiraishi, Hiroshi; and Moriguchi, Shigeru, to Kajima Corporation; and Mitsui Engineering and Shipbuilding Co. Continuous working process of steel bars for reinforced concrete and apparatus therefor. 4,339,861, Cl. 29-416.000.
Shirasu, Hiroshi: *See*—
Ogasawara, Akira; Shirasu, Hiroshi; and Utagawa, Ken, 4,340,819, Cl. 250-578.000.
Shizuoka Seiki Co., Ltd.: *See*—
Hatta, Yoshio; and Suzuki, Shigeo, 4,340,028, Cl. 126-92.00R.
Shoemaker, George T.: *See*—
Stack, Timothy F.; and Shoemaker, George T., 4,340,881, Cl. 340-347.00R.
Shotwell, Kenneth E.: *See*—
Fitzpatrick, Peter R.; Meyerand, Russell G., Jr.; and Shotwell, Kenneth E., 4,339,929, Cl. 62-79.000.
Shoup, Kenneth E. Farm implement with two-way hitch. 4,340,239, Cl. 280-415.00R.

Show-Pak, Incorporated: *See—*
Wilcox, Donald G.; and Zambrano, Nobile, 4,340,139, Cl. 206-349.000.
Wilcox, Donald G.; and Zambrano, Nobile, 4,340,140, Cl. 206-373.000.

Shpigel, Efraim A.: *See—*
Chichkin, Valentin P.; Shpigel, Efraim A.; Gokin, Gennady P.; Matjuschenko, Georgy E.; Kurakov, Nikolai N.; Rabinovich, Grigory B.; Samoilovsky, Sergei A.; Angel, Boris S.; Ilienko, Vladimir S.; Miterev, Vladimir P.; Zemlyanov, Leonid S.; and Krutkov, Anatoly F., 4,339,906, Cl. 56-327.00R.

Shreeve, Francesca M.: *See—*
Drake, Cyril F.; and Shreeve, Francesca M., 4,340,693, Cl. 525-337.000.

Shugaeva, Nina A.: *See—*
Grishin, Boris P.; Gruznov, Alexandr G.; Romanov, Leonid M.; Vishnyak, Julian I.; Shugaeva, Nina A.; Bychkov, Nikolai M.; Lipets, Konstantin V.; and Zotov, Alexandr I., 4,340,720, Cl. 528-232.000.

Shuleva, John J.: *See—*
Pate, Daniel R.; Delaney, Robert R.; and Shuleva, John J., 4,340,547, Cl. 260-428.500.

Shultz, William E. Apparatus and method for inserting and removing bushings and bearings. 4,339,865, Cl. 29-525.000.

Sico Incorporated: *See—*
Konikoff, Robert S. K.; Rudolph, Richard G.; and Gill, George H., 4,340,929, Cl. 362-153.000.

Sidwell, Lloyd G., to Du Pont de Nemours, E. I., and Company. Silver halide film. 4,340,665, Cl. 430-539.000.

Siecor Corporation: *See—*
Watts, William M., 4,340,771, Cl. 174-36.000.

Siemens Aktiengesellschaft: *See—*
Brunner, Anton; and Jatsch, Werner, 4,340,892, Cl. 343-768.000.
Forster, Helmut; Hini, Paul; and Stransky, Gerd, 4,340,260, Cl. 308-10.000.
Kobale, Manfred; Littwin, Burkhard; and Wengert, Rolf, 4,340,838, Cl. 313-348.000.
Quella, Ferdinand; and Pape, Heinz, 4,340,817, Cl. 250-458.000.
Schott, Ottfried, 4,340,816, Cl. 250-445.00T.
Sprick, Erhard; and Kaiserswerth, Rudolf, 4,340,964, Cl. 371-38.000.
Vogelsberg, Dieter, 4,339,913, Cl. 57-294.000.

Siemens Aktiengesellshaft: *See—*
Wintzer, Klaus; Zemanek, Josef; and von Sichart, Frithjof, 4,340,962, Cl. 370-100.000.

Siemens Corporation: *See—*
Fasang, Patrick P., 4,340,857, Cl. 324-73.00R.
Ganz, Manfred; and Gueldner, Enrique, 4,340,776, Cl. 178-3.000.
Gesek, William; and Major, James M., 4,340,775, Cl. 178-3.000.
Ruell, Hartwig, 4,340,300, Cl. 356-71.000.

Siewert, Helmut: *See—*
Strugala, Alfred; Dittrich, Erich; and Siewert, Helmut, 4,339,937, Cl. 72-110.000.

Silver, Alexander: *See—*
Mc'Carty, Frederick B.; and Silver, Alexander, 4,339,874, Cl. 29-598.000.

Simon, Lionel N.; Giner-Sorolla, Alfredo; and Guttag, Alvin, to Newport Pharmaceuticals International, Inc.; and Sloan-Kettering Institute for Cancer Research. Esters. 4,340,726, Cl. 536-17.400.

Simson, Walter A. Method and apparatus for producing sheet-like printed products having a folded portion. 4,340,212, Cl. 270-5.000.

Sipido, Victor, to Janssen Pharmaceutica, N.V. 2,3-Dihydroimidazo[2,1-b]benzothiazoles. 4,340,738, Cl. 548-151.000.

Skala, Stephen F. Evaporative cooling of containers in a pressure vessel. 4,340,111, Cl. 165-2.000.

Skelton, John; Clark, Richard E.; and Davis, Robert B., to Albany International Corp.; and Washington University. Elastomeric sheet materials for heart valve and other prosthetic implants. 4,340,091, Cl. 139-383.00R.

SKF Kugellagerfabriken GmbH: *See—*
Olschewski, Armin; Brandenstein, Manfred; Walter, Lothar; and Kunkel, Heinrich, 4,340,135, Cl. 192-98.000.

SKF Steel Engineering Aktiebolag: *See—*
Santen, Sven; and Edstrom, John O., 4,340,420, Cl. 75-10.00R.

Skinner, Frank R.: *See—*
Dennis, Mahlon D.; and Skinner, Frank R., 4,339,896, Cl. 51-298.000.

Skolnik, Marvin B.: *See—*
Aboelfotoh, Mohamed O.; and Skolnik, Marvin B., 4,340,840, Cl. 315-58.000.

Sladeck, Hans J.: *See—*
Hubner, Wolfgang; Schroers, Otto; and Sladeck, Hans J., 4,340,525, Cl. 252-8.55B.

Sloan, Kenneth B.: *See—*
Bodor, Nicholas S.; Sloan, Kenneth B.; and Pogany, Stefano A., 4,340,603, Cl. 424-301.000.

Sloan-Kettering Institute for Cancer Research: *See—*
Simon, Lionel N.; Giner-Sorolla, Alfredo; and Guttag, Alvin, 4,340,726, Cl. 536-17.400.

Slonim, David M. Apparatus for harnessing wave energy. 4,340,821, Cl. 290-53.000.

Smith, Alfred H., Jr.: *See—*
Jeram, Edward M.; and Smith, Alfred H., Jr., 4,340,709, Cl. 528-15.000.

Smith, Bryan; Keech, Andrew E.; and Dawson, Patricia A., to Grove Valve and Regulator Company. Energy dissipating pipeline surge relief system. 4,340,079, Cl. 137-207.000.

Smith, Dennis M., to B.A.G., Inc. Inflatable splint. 4,340,042, Cl. 128-87.00R.

Smith, Denver W.: *See—*
Braun, John L.; Smith, Denver W.; and Ekey, William J., 4,340,853, Cl. 324-51.000.

Smith, Henry I.; Austin, Stewart S.; and Flanders, Dale C., to Massachusetts Institute of Technology. Plate aligning. 4,340,305, Cl. 356-356.000.

Smith International, Inc.: *See—*
Herd, David P., 4,340,204, Cl. 251-327.000.

Smith, James. Solar heating system. 4,340,032, Cl. 126-430.000.

Smith, James H. Wood burning stove. 4,340,026, Cl. 126-5.000.

Smith, John G.: *See—*
Ball, Geoffrey; Deadman, Harry A.; Smith, John G.; and Vokes, John C., 4,339,870, Cl. 29-576.00B.

Smith & Nephew Research Ltd.: *See—*
Seymour, Donald E., 4,340,043, Cl. 128-132.00D.

Smith, Robert L. Change-a-bowl pipe. 4,340,071, Cl. 131-202.000.

Smith, Walter E. Soft body guitar. 4,339,981, Cl. 84-291.000.

Smith, Walton J. Plant hibernation. 4,340,414, Cl. 71-59.000.

Smith, Wanda S.: *See—*
Doorakian, George A.; and Smith, Wanda S., 4,340,761, Cl. 568-11.000.

SmithKline Corporation: *See—*
Brenner, L. Martin; and Wardell, Joe R., Jr., 4,340,600, Cl. 424-258.000.
Brenner, L. Martin, 4,340,601, Cl. 424-258.000.
Lam, Bing L., 4,340,733, Cl. 544-224.000.

Smiths Industries Limited: *See—*
Hedrick, Geoffrey S. M., 4,339,943, Cl. 73-4.00R.

Sneider, Vincent R. Impregnated tampon and method of fabricating same. 4,340,055, Cl. 128-270.000.

Snow, John P., to Houdaille Industries, Inc. Check valve. 4,340,084, Cl. 137-512.000.

Societa Impianti Termoelettrici Industriali (s.a.s.): *See—*
Bossetti, Renato, 4,340,358, Cl. 432-11.000.

Societa Italiana Telecomunicazioni Siemens S.p.A.: *See—*
Orlandi, Giorgio, 4,340,856, Cl. 324-73.00R.

Societe Alsacienne de Constructions Mecaniques de Mulhouse: *See—*
Close, Pierre, 4,339,912, Cl. 57-275.000.

Societe Coturnix: *See—*
Lucotte, Gerard; and Talamon, Jerome, 4,340,591, Cl. 424-177.000.

Societe d'Assistance Technique pour Produits Nestle S.A.: *See—*
Askman, Lars; Wetzel, Pierre; and Isely, Alain, 4,340,612, Cl. 426-276.000.

Soeldner, John S.: *See—*
Lerner, Harry; Giner, Jose D.; and Soeldner, John S., 4,340,458, Cl. 204-195.00R.

Soffa, Albert: *See—*
Bilane, Glenn B.; Rubin, Lawrence M.; Soffa, Albert; and Vilenski, Dan, 4,340,166, Cl. 228-179.000.

Solar Turbines Incorporated: *See—*
White, David J.; and Roberts, Peter B., 4,339,924, Cl. 60-733.000.

Solartron Electronic Group Limited, The: *See—*
Cook, John G., 4,340,883, Cl. 340-347.0NT.

Sony Corporation: *See—*
Menezes, William A., 4,340,916, Cl. 360-72.200.
Shimada, Sachio; and Ohwada, Yoshiaki, 4,340,186, Cl. 242-7.05B.
Tamura, Eiji, 4,340,903, Cl. 358-10.000.
Wakabayashi, Hideo; and Teraoka, Kenro, 4,340,908, Cl. 358-194.100.

Sorenson, Richard W., to Carlingswitch, Inc. Environmentally sealed rocker switch. 4,340,791, Cl. 200-302.000.

Soriano, Louis: *See—*
Crasnianski, Serge; and Soriano, Louis, 4,339,994, Cl. 101-4.000.

Spacil, Henry S.: *See—*
Luthra, Krishan L.; and Spacil, Henry S., 4,340,399, Cl. 55-72.000.

Spademan, Richard G. Releasable ski binding with mechanical time integrator. 4,340,243, Cl. 280-624.000.

Sparks, Richard A., to Raytheon Company. Method of measuring magnetic field characteristics of magnetic materials. 4,340,861, Cl. 324-205.000.

Spector, George: *See—*
Danek, Ladislav; and Spector, George, 4,340,175, Cl. 239-33.000.
King, Paul M.; and Spector, George, 4,340,842, Cl. 315-186.000.

Spencer, Herbert J.: *See—*
Fukui, George M.; Spencer, Herbert J.; and Williams, Laurens R., II, 4,340,679, Cl. 435-253.000.

Sperry Corporation: *See—*
El-Ibiary, Yehia, 4,340,087, Cl. 137-625.640.

Sperry Vickers, Division of Sperry GmbH: *See—*
Hemm, Ansgar; and Deppner-Hiemesch, Harald, 4,340,086, Cl. 137-554.000.

Spivack, Bruce D.: *See—*
Netting, David I.; Spivack, Bruce D.; and Cunnion, James P., Jr., 4,340,642, Cl. 428-402.000.

Spivey, David L. Method and apparatus for medication dispensing. 4,340,153, Cl. 222-1.000.

Spokane Crusher Mfg. Co.: *See—*
Archer, Fred C., 4,340,469, Cl. 209-315.000.

Spooner, Archer M., to Redifon Simulation Limited. Visual display apparatus. 4,340,274, Cl. 350-128.000.

Spooner, Archer M.; and Murray, Paul M., to Redifon Simulation Limited. Visual display apparatus. 4,340,878, Cl. 340-27.00R.

Sporteach, Inc.: *See—*
Heist, Kenneth D., 4,340,972, Cl. 455-39.000.

Sprick, Erhard; and Kaiserswerth, Rudolf, to Siemens Aktiengesellschaft. Method and an arrangement for automatic access optimization in random access memories. 4,340,964, Cl. 371-38.000.

Springborn, Karl S., to Austung Proprietary Limited. Process and apparatus for the manufacture of sintered tungsten carbide tool tips. 4,340,350, Cl. 425-409.000.

Springett, Charles N.; Abramovich, Dan; Uyeda, Stanley T.; and Radu, E. John, to Santa Fe International Corporation. Self propelled dynamically positioned reel pipe laying ship. 4,340,322, Cl. 405-168.000.

SQUARE S.A.: *See—*
Roma, Carlo, 4,340,444, Cl. 202-99.000.

Srinivasan, Venkataraman; Cassidy, Stephen; and Grassie, Charles, to Texas Instruments Incorporated. Method for selectively electroplating portions of articles. 4,340,449, Cl. 204-15.000.

Sta-Rite Industries, Inc.: *See—*
Hibbard, Neil K.; Kinsey, Cliff J.; and Belongia, Clyde G., 4,340,039, Cl. 128-66.000.

Staats, Hilton S. Goalkeeper's hockey stick. 4,340,224, Cl. 273-67.00A.

Stablex A.G.: *See—*
Robinson-Todd, David W., 4,340,396, Cl. 23-293.00R.

Stack, Timothy F.; and Shoemaker, George T., to United Technologies Corporation. Universal analog signal to digital signal interface. 4,340,881, Cl. 340-347.00R.

Stafford, William G. Wallpaper preparation board. 4,340,161, Cl. 225-18.000.

Stalder, John L., to Conoco Inc. Insulated prestressed conduit string for heated fluids. 4,340,245, Cl. 285-53.000.

Stamicarbon, B.V.: *See—*
Duyzings, Wilhelmus G.; van der Loos, Jozef L. M.; and Tijssen, Jan, 4,340,723, Cl. 528-497.000.

Stannard, Forrest B.; and Highstreet, Edward J., to DeHydro Corporation, The. Filter media and filter apparatus. 4,340,478, Cl. 210-286.000.

Staudacher, Frank: *See—*
Stemme, Otto; Staudacher, Frank; Lermann, Peter; Danhauser, Justus; Engelsmann, Dieter; and Wagner, Karl, 4,340,288, Cl. 354-171.000.

Stauffer Chemical Company: *See—*
MacDonald, Alan A.; Pallos, Ferenc M.; and Teach, Eugene G., 4,340,419, Cl. 71-93.000.

Steag AG: *See—*
Hein, Helmut, 4,340,000, Cl. 110-245.000.

Steele, Duane F., to Ford Motor Company. Free eccentric reciprocating piston device. 4,339,988, Cl. 91-493.000.

Stegmeier, William J. Spring clip and molding form utilizing same. 4,340,200, Cl. 249-3.000.

Stein, Marc T.: *See—*
Thompson, David L.; McDonald, Ray S.; Lee, Yan S.; and Stein, Marc T., 4,340,062, Cl. 128-419.0PG.

Steiner, Artur; and Frank, Howard G. Dental articulating paper forceps. 4,340,369, Cl. 433-162.000.

Stemme, Otto; Staudacher, Frank; Lermann, Peter; Danhauser, Justus; Engelsmann, Dieter; and Wagner, Karl, to Agfa-Gevaert Aktiengesellschaft. Film cassette and method of making the same. 4,340,288, Cl. 354-171.000.

Stephenson, Dwight B.; and Koehler, David L., to Deere & Company. Pressure detent mechanism. 4,339,987, Cl. 91-426.000.

Sternberg, Shmuel, to Millipore Corporation. Process for grafting amino acid molecules onto preformed polymer surfaces and products prepared thereby. 4,340,482, Cl. 210-500.200.

Steury, Thomas R.: *See—*
Kegel, Richard L.; Pugh, Burton J.; and Steury, Thomas R., 4,340,183, Cl. 239-710.000.

Stewart, James M. Heat collecting, utilizing and storage apparatus and method. 4,340,033, Cl. 126-437.000.

Stewart-Warner Corporation: *See—*
Fontana, Frank J.; and Forte, Francis J., 4,339,842, Cl. 16-32.000.

Steyert, William A., Jr.; and Overton, William C., Jr., to United States of America, Energy. Apparatus and method for maintaining low temperatures about an object at a remote location. 4,340,405, Cl. 62-514.00R.

Stoddard, James R., to J. Stoddard & Sons Limited. Feed device and method for supplying free-flowing material to a container. 4,340,096, Cl. 141-1.000.

Stoeckigt, Dieter: *See—*
Klahr, Erhard; Hettche, Albert; Trieselt, Wolfgang; Stoeckigt, Dieter; and Trapp, Horst, 4,340,766, Cl. 568-625.000.

Stone, Roger: *See—*
Jones, Wayne W.; and Stone, Roger, 4,340,854, Cl. 324-57.0DE.

Stork PMT B.V.: *See—*
van Mil, Martinus P. G., 4,339,849, Cl. 17-52.000.

Story, Alfred D.; and Asquith, Dixon R., to Teepak, Inc. Convoluted shirring wheel. 4,339,894, Cl. 51-281.00R.

Stoudt, Thomas H.; and Nollstadt, Karl H., to Merck & Co., Inc. Process of producing modified glucans as anti-caries agent. 4,340,673, Cl. 435-97.000.

Stournas, Stamoulis, to Mobil Oil Corporation. Oil recovery by surfactant waterflooding. 4,340,492, Cl. 252-8.55D.

Straith, Richard E. Nose splint. 4,340,040, Cl. 128-76.00C.

Stransky, Gerd: *See—*
Forster, Helmut; Hini, Paul; and Stransky, Gerd, 4,340,260, Cl. 308-10.000.

Stratton, John R. Disposable coaster. 4,340,146, Cl. 215-100.500.

Straus, Albert E., to Hoover Universal, Inc. Adjustable ballcock standpipe assembly. 4,340,082, Cl. 137-426.000.

Streeter, Robert D.: *See—*
Weigand, James R.; and Streeter, Robert D., 4,340,782, Cl. 179-1.0GS.

Streeter, Wesley R. Decoy, mold and method of construction. 4,339,887, Cl. 43-2.000.

Streible, Gert: *See—*
Lieb, Folker; Oediger, Hermann; and Streible, Gert, 4,340,599, Cl. 424-212.000.

Strohkirch, John C.: *See—*
Howard, William G.; Strohkirch, John C.; and Pehl, Marilyn A., 4,340,651, Cl. 429-101.000.

Strong, Herbert M., to General Electric Company. High pressure reaction vessel for growing diamond on diamond seed and method therefor. 4,340,576, Cl. 423-446.000.

Struckmann, Holger. Apparatus and method of heating particulate material. 4,340,359, Cl. 432-14.000.

Strugala, Alfred; Dittrich, Erich; and Siewert, Helmut, to Thyssen Industrie AG. Ring rolling mill. 4,339,937, Cl. 72-110.000.

Stubbs, Graham S.: *See—*
den Toonder, Pieter; Seltenrijch, Johannes C.; Stubbs, Graham S.; Fondse, Pieter J.; and Jirka, Howard F., 4,340,906, Cl. 358-124.000.

Stuber, Gyorgy: *See—*
Barsi, Karoly; Dorombozi, Laszlo; Forisek, Istvan; Kuburczik, Gyula; and Stuber, Gyorgy, 4,340,254, Cl. 299-11.000.

Stuff, Alfred O., Jr. Golf club including alignment device. 4,340,229, Cl. 273-164.000.

Stump, Ronald C.: *See—*
Jobling, Lancelot A.; Sabec, Charles J.; and Stump, Ronald C., 4,339,919, Cl. 60-322.000.

Stumpp, Gerhard; Eblen, Ewald; Hofmann, Karl; Amaya, Nestor R.; Schlagenhauf, Josef; and Kopse, Odon, to Robert Bosch GmbH. Fuel injection nozzle for internal combustion engines. 4,340,181, Cl. 239-533.300.

Sublett, Bobby J.: *See—*
Zannucci, Joseph S.; Sublett, Bobby J.; and Irick, Gether, Jr., 4,340,718, Cl. 528-128.000.

Sudler, Roland; and Schwab, Jean-Francois, to Quarz-Zeit AG. Single phase stepping motor. 4,340,828, Cl. 310-49.00R.

Sudo, Michio; and Miura, Hitoshi, to Kangyo Denkikiki Kabushiki Kaisha. Miniature motor coil. 4,340,833, Cl. 310-268.000.

Sudo, Tsuneta: *See—*
Maio, Kenji; and Sudo, Tsuneta, 4,340,882, Cl. 340-347.0CC.

Suehiro, Akio: *See—*
Sugiyama, Tomonori; and Suehiro, Akio, 4,340,783, Cl. 179-2.00A.

Suematsu, Yasuharu: *See—*
Akiba, Shigeyuki; Suematsu, Yasuharu; Arai, Shigehisa; Kodaira, Masanobu; Itaya, Yoshio; Iga, Kenichi; Ota, Chuichi; Yamamoto, Takaya; and Sakai, Kazuo, 4,340,966, Cl. 372-45.000.

Sugahara, Takehisa: *See—*
Honda, Norio; and Sugahara, Takehisa, 4,340,902, Cl. 357-74.000.

Sugawara, Kohichi; Matsui, Isamu; Ishimaru, Naoki; and Ikegami, Teruhiro, to Denki Kagaku Kogyo Kabushiki Kaisha. Process for producing carbon black. 4,340,577, Cl. 423-450.000.

Sugimori, Shigeru, to Chisso Corporation. Halogenated ester derivatives. 4,340,498, Cl. 252-299.500.

Sugiyama, Tomonori; and Suehiro, Akio, to Hitachi, Ltd. Voice frequency response system. 4,340,783, Cl. 179-2.00A.

Sullivan, Ann C.: *See—*
Guthrie, Robert W.; Kierstead, Richard W.; Mennona, Francis A.; and Sullivan, Ann C., 4,340,754, Cl. 562-584.000.

Sumikawa, Seiji: *See—*
Sutoh, Shinji; Sumikawa, Seiji; and Hara, Toshizo, 4,340,112, Cl. 165-16.000.

Sumikin Coke Co., Ltd.: *See—*
Aiba, Takaaki; Kaji, Hisatsugu; Endo, Tomizo; and Ishihara, Takao, 4,340,464, Cl. 208-40.000.

Sumitomo Bakelite Company Limited: *See—*
Higashiguchi, Takeichi; Fukuoka, Masasuke; Emura, Tomoyuki; and Moriuchi, Yasuhiro, 4,340,530, Cl. 524-515.000.

Sumitomo Chemical Company Limited: *See—*
Higashiguchi, Takeichi; Fukuoka, Masasuke; Emura, Tomoyuki; and Moriuchi, Yasuhiro, 4,340,530, Cl. 524-515.000.
Suzukamo, Gohu; Takano, Tetsuo; Tamura, Mitsuhisa; and Ikimi, Kiyoshi, 4,340,544, Cl. 549-356.000.

Sumitomo Metal Industries, Ltd.: *See—*
Aiba, Takaaki; Kaji, Hisatsugu; Endo, Tomizo; and Ishihara, Takao, 4,340,464, Cl. 208-40.000.

Sun-Ohio Inc.: *See—*
Jordan, Otis D., 4,340,471, Cl. 210-101.000.

Sunpower, Inc.: *See—*
Senft, James R., 4,339,960, Cl. 74-50.000.

Super Shops, Inc.: *See—*
Chavis, Leon A.; and Moseley, Gordon P., 4,340,885, Cl. 340-632.000.

Suplinskas, Raymond J.: *See—*
DeBolt, Harold E.; Suplinskas, Raymond J.; Cornie, James A.; Henze, Thomas W.; and Hauze, Albert W., 4,340,636, Cl. 428-215.000.

Sutoh, Shinji; Sumikawa, Seiji; and Hara, Toshizo, to Diesel Kiki Company, Ltd. Vehicle air temperature control apparatus. 4,340,112, Cl. 165-16.000.

Sutton, David L., to Halliburton Company. Well cementing process and gasified cements useful therein. 4,340,427, Cl. 106-87.000.

Suyama, Tadakazu: *See—*
Mizushima, Yutaka; Yokoyama, Kazumasa; Nabeta, Kiichiro; Yamada, Noboru; and Suyama, Tadakazu, 4,340,594, Cl. 424-238.000.
Uemura, Yahiro; Nagatomo, Midori; Funakoshi, Satoshi; and Suyama, Tadakazu, 4,340,589, Cl. 424-101.000.

Suzukamo, Gohu; Takano, Tetsuo; Tamura, Mitsuhisa; and Ikimi, Kiyoshi, to Sumitomo Chemical Company, Limited. Process for producing 2-(2'-methyl-1'-propenyl)-4-methyltetrahydropyran. 4,340,544, Cl. 549-356.000.

Suzuki, Atsushi: *See—*
Ninomiya, Masakazu; Kiuchi, Hideo; Suzuki, Atsushi; and Kobayashi, Nobuyuki, 4,340,022, Cl. 123-453.000.

Suzuki, Hiroshi: *See—*
Wada, Akihiro; Tazaki, Kichiya; Tahara, Tamotsu; Suzuki, Hiroshi; and Mizutani, Yukihisa, 4,340,551, Cl. 264-25.000.

Suzuki, Keiji: *See—*
Watanabe, Masaki; Shimoyama, Hiroshi; and Suzuki, Keiji, 4,340,125, Cl. 180-215.000.

Suzuki, Masahiro. Method of producing hydrogen. 4,340,580, Cl. 423-657.000.

Suzuki, Masakazu: *See—*
Furuichi, Shuhei; and Suzuki, Masakazu, 4,340,971, Cl. 378-40.000.

Suzuki, Ryuji: *See—*
Ueda, Shigeki; Takano, Teruhisa; and Suzuki, Ryuji, 4,340,799, Cl. 219-10.55C.

Suzuki, Shigeo: *See—*
Hatta, Yoshio; and Suzuki, Shigeo, 4,340,028, Cl. 126-92.00R.

Suzuki, Shigeto, to Chevron Research Company. Process for the preparation of 2,6-dialkylaniline from brominated dialkyl t-butylbenzene. 4,340,757, Cl. 564-407.000.

Suzuki, Suzuo; Nakagawa, Yasuhiko; Aihara, Hisamoto; Matsumoto, Yasuo; and Sato, Yoji, to Nissan Motor Company, Limited. Internal combustion engine. 4,340,024, Cl. 123-538.000.

Svec, Frantisek: *See—*
Lukas, Jaromir; Kalal, Jaroslav; and Svec, Frantisek, 4,340,483, Cl. 210-502.000.

Svensson, Uno. Hydraulically operated crimping tool. 4,339,942, Cl. 72-453.160.

Swanson, Clare E., to Conwed Corporation. Oil sorbent structures and method of picking up oil. 4,340,486, Cl. 210-693.000.

Sweeley, Gordon F.: *See—*
Tapper, Robert; and Sweeley, Gordon F., 4,340,047, Cl. 128-207.210.

Sweeney, Richard F.: *See—*
Anello, Louis G.; and Sweeney, Richard F., 4,340,762, Cl. 568-24.000.

Synthetic Surfaces, Inc.: *See—*
Legue, Norris R.; and Shapiro, Myron, 4,340,682, Cl. 524-507.000.

Tabb, David L.: *See—*
Magers, Thomas A.; and Tabb, David L., 4,340,392, Cl. 23-230.00B.
Magers, Thomas A.; and Tabb, David L., 4,340,393, Cl. 23-230.00B.
Magers, Thomas A.; and Tabb, David L., 4,340,394, Cl. 23-230.00B.
Magers, Thomas A.; and Tabb, David L., 4,340,395, Cl. 23-230.00B.

Tabei, Seikichi; and Sasaki, Shigeo, to Nippon Chemical Industrial Co., Ltd. Additives for continuous casting of steel. 4,340,426, Cl. 75-257.000.

Tadanier, John S.: *See—*
Martin, Jerry R.; Tadanier, John S.; and Johnson, Paulette, 4,340,727, Cl. 536-16.100.

Tahara, Tamotsu: *See—*
Wada, Akihiro; Tazaki, Kichiya; Tahara, Tamotsu; Suzuki, Hiroshi; and Mizutani, Yukihisa, 4,340,551, Cl. 264-25.000.

Tahara, Yoshiyuki; Koyama, Hiroyasu; Komatsu, Yasuhiro; Kubota, Reiko; and Takahashi, Toshihiro, to Nisshin Flour Milling Co., Ltd. Monophenylamine derivatives. 4,340,760, Cl. 564-462.000.

Taiho Kogyo Co., Ltd.: *See—*
Nara, Tamotsu; and Kamiya, Soji, 4,340,649, Cl. 428-653.000.

Taiho Pharmaceutical Company Limited: *See—*
Koda, Akihide; Hori, Mikio; Yasumoto, Mitsugi; Yamawaki, Ichiro; Yamada, Yuji; and Takikawa, Katsuo, 4,340,543, Cl. 549-414.000.

Taira, Tadaaki; Ishihara, Toshio; Itoshima, Hiromichi; Mihara, Yutaka; and Kogawa, Takashi, to Nippon Kokan Kabushiki Kaisha. Method and apparatus for producing thick welded steel pipe. 4,339,941, Cl. 72-412.000.

Takahashi, Atsushi; Muratsubaki, Yoshiharu; and Ishizuka, Hiroyuki, to Nippon Carbide Kogyo Kabushiki Kaisha. Powdery desulfurizer composition. 4,340,422, Cl. 75-58.000.

Takahashi, Keiichi: *See—*
Tomita, Fusao; Matsuda, Yuzura; Shirahata, Kunikatsu; Takahashi, Keiichi; Nakano, Hirofumi; Sato, Tomoyasu; Okubo, Shuji; and Nakamura, Nobuo, 4,340,725, Cl. 536-1.100.

Takahashi, Koji: *See—*
Toda, Kohji; Takahashi, Koji; and Matsufuji, Isao, 4,340,506, Cl. 252-501.100.

Takahashi, Toshihiro: *See—*
Tahara, Yoshiyuki; Koyama, Hiroyasu; Komatsu, Yasuhiro; Kubota, Reiko; and Takahashi, Toshihiro, 4,340,760, Cl. 564-462.000.

Takano, Teruhisa; and Ueda, Shigeki, to Matsushita Electric Industrial Co., Ltd. Voice actuated heating apparatus. 4,340,797, Cl. 219-10.55B.

Takano, Teruhisa: *See—*
Ueda, Shigeki; and Takano, Teruhisa, 4,340,798, Cl. 219-10.55B.
Ueda, Shigeki; Takano, Teruhisa; and Suzuki, Ryuji, 4,340,799, Cl. 219-10.55C.
Ueda, Shigeki; and Takano, Teruhisa, 4,340,800, Cl. 219-10.55B.

Takano, Tetsuo: *See—*
Suzukamo, Gohu; Takano, Tetsuo; Tamura, Mitsuhisa; and Ikimi, Kiyoshi, 4,340,544, Cl. 549-356.000.

Takasu, Yoshio: *See—*
Kiuchi, Masashi; Takasu, Yoshio; Fukumoto, Hiroshi; Hino, Takashi; Uchiyama, Masaki; and Mitsuhashi, Yasuo, 4,340,660, Cl. 430-106.600.

Takeda Chemical Industries, Ltd.: *See—*
Furukawa, Yoshiyasu; Kishimoto, Shoji; and Nishikawa, Kohei, 4,340,598, Cl. 424-273.00R.
Ikeda, Yorifumi; and Tsujimoto, Yasuhiro, 4,340,485, Cl. 210-675.000.
Kawamatsu, Yutaka; and Fujita, Takeshi, 4,340,605, Cl. 424-263.000.

Takenoya, Hideaki: *See—*
Hanyu, Susumu; and Takenoya, Hideaki, 4,340,002, Cl. 112-158.00E.

Takeuchi, Yasumasa; Obata, Yutaka; Ohshima, Noboru; Shibata, Tooru; and Nakako, Kaoru, to Japan Synthetic Rubber Co., Ltd. Process for preparing polybutadiene having a 1,2-configuration content of 5–40% and a cis-1,4-configuration content of 60% or more. 4,340,685, Cl. 525-247.000.

Takikawa, Katsuo: *See—*
Koda, Akihide; Hori, Mikio; Yasumoto, Mitsugi; Yamawaki, Ichiro; Yamada, Yuji; and Takikawa, Katsuo, 4,340,543, Cl. 549-414.000.

Talamon, Jerome: *See—*
Lucotte, Gerard; and Talamon, Jerome, 4,340,591, Cl. 424-177.000.

Tamura, Eiji, to Sony Corporation. Television camera. 4,340,903, Cl. 358-10.000.

Tamura, Mitsuhisa: *See—*
Suzukamo, Gohu; Takano, Tetsuo; Tamura, Mitsuhisa; and Ikimi, Kiyoshi, 4,340,544, Cl. 549-356.000.

Tamura, Takashi; and Iwai, Yasuyuki, to Konishiroku Photo Industry Co., Ltd. Device for driving copy board of a copying machine. 4,340,297, Cl. 355-50.000.

Tanaka, Hiromichi: *See—*
Yamada, Takahiro; and Tanaka, Hiromichi, 4,340,909, Cl. 358-213.000.

Tanaka, Keiji: *See—*
Ohara, Katsunobu; Tanaka, Keiji; Ando, Yujiro; and Moriyama, Inao, 4,340,296, Cl. 355-35.00C.

Tanaka, Yoshio; Togawa, Susumu; and Sakoda, Akinori, to Kubota, Ltd. Apparatus for heat-treating cast iron pipes. 4,340,361, Cl. 432-128.000.

Tapper, Robert; and Sweeley, Gordon F., to Tapper, Robert. Iontophoretic treatment apparatus. 4,340,047, Cl. 128-207.210.

Tatabanyai Szenbanyak: *See—*
Barsi, Karoly; Dorombozi, Laszlo; Forisek, Istvan; Kuburczik, Gyula; and Stuber, Gyorgy, 4,340,254, Cl. 299-11.000.

Tatsumi, Hideo: *See—*
Kanamaru, Hisanobu; Okabe, Moisei; Tatsumi, Hideo; Tohkairin, Akira; and Kasama, Ryoji, 4,339,873, Cl. 29-598.000.

Tayter, Maya: *See—*
Dickey, Leland C.; and Tayter, Maya, 4,339,882, Cl. 34-9.000.

Tazaki, Kichiya: *See—*
Wada, Akihiro; Tazaki, Kichiya; Tahara, Tamotsu; Suzuki, Hiroshi; and Mizutani, Yukihisa, 4,340,551, Cl. 264-25.000.

Tazima, Humio: *See—*
Endo, Tsunehiro; and Tazima, Humio, 4,340,931, Cl. 363-44.000.

TBS International, Inc.: *See—*
Cave, Ellis K., 4,340,913, Cl. 360-40.000.

TDK Electronics Co., Ltd.: *See—*
Ota, Hiroshi; Horigome, Eiji; and Azegami, Hitoshi, 4,340,644, Cl. 428-423.700.
Toda, Kohji; Takahashi, Koji; and Matsufuji, Isao, 4,340,506, Cl. 252-501.100.

Teach, Eugene G.: *See—*
MacDonald, Alan A.; Pallos, Ferenc M.; and Teach, Eugene G., 4,340,419, Cl. 71-93.000.

Teepak, Inc.: *See—*
Story, Alfred D.; and Asquith, Dixon R., 4,339,894, Cl. 51-281.00R.

Teeple, Lawrence R., Jr., to Trigon. Integrated circuit carrier package test probe. 4,340,860, Cl. 324-158.00F.

Teich, Udo: *See—*
Schippers, Heinz; Hufer, Norbert; Munnekehoff, Gerd; and Teich, Udo, 4,340,187, Cl. 242-35.50A.

Teichmann, Friedrich; and Wenderoth, Karl, to Adlerwerke vorm Heinrich Kleyer A.G. Printing area cover plate for typewriters or like machines. 4,340,315, Cl. 400-690.400.

Teitel, Sidney: *See—*
Focella, Antonino; Heveran, John E.; Teitel, Sidney; and Weigele, Manfred, 4,340,736, Cl. 544-301.000.

Tektronix, Inc.: *See—*
Metz, Arthur J., 4,340,866, Cl. 330-254.000.

Teldix GmbH: *See—*
Wehde, Heinz, 4,340,261, Cl. 308-10.000.

Teraoka, Kenro: *See—*
Wakabayashi, Hideo; and Teraoka, Kenro, 4,340,908, Cl. 358-194.100.

Terauchi, Kiyoshi: *See*—
Hiraga, Masaharu; and Terauchi, Kiyoshi, 4,340,339, Cl. 418-55.000.

Terlecky, Boris S.: *See*—
Brodeur, Rene H.; Terlecky, Boris S.; Sellberg, Ronald P.; and Halliar, William R., 4,339,996, Cl. 105-3.000.

Tersteeg, Glenn E.: *See*—
Collins, Richard A.; Tersteeg, Glenn E.; and Jessop, Thomas C., 4,340,390, Cl. 23-230.00B.

Teshigawara, Haruhiko: *See*—
Endo, Takeshi; Sakai, Katsumi; Chou, Kiyoaki; Inamoto, Yoshitaka; and Teshigawara, Haruhiko, 4,340,728, Cl. 536-23.000.

Tester, Norman W. Piezo-electric film manufacture. 4,340,786, Cl. 179-110.00A.

Texas Instruments Incorporated: *See*—
Culley, Bobby G., 4,340,374, Cl. 434-201.000.
Rizzo, Salvatore P.; and LaPlante, William J., 4,340,164, Cl. 228-57.000.
Srinivasan, Venkataraman; Cassidy, Stephen; and Grassie, Charles, 4,340,449, Cl. 204-15.000.
Teza, Jeffrey R., 4,340,871, Cl. 331-111.000.

Textron, Inc.: *See*—
Book, Walter R.; and Putetti, Anthony M., 4,339,939, Cl. 72-349.000.

Teza, Jeffrey R., to Texas Instruments Incorporated. Low power oscillator having clamping transistors across its timing capacitors. 4,340,871, Cl. 331-111.000.

Tharp, Billy J. Method and apparatus for producing fluidized lime. 4,340,308, Cl. 366-2.000.

Theissen, Robert J., to Rhone-Poulenc Agrochimie. Herbicidal 1-(5-[2-chloro-4-(trifluoromethyl)phenoxy]-2-nitrobenzoyl)-3-isopropyl-2,1,3-benzothiadiazin-4-one,2,2-dioxide. 4,340,417, Cl. 71-91.000.

Theunissen, Walther A. H.: *See*—
van Geel, Jacobus N. C.; Dobbels, Frans M.; and Theunissen, Walther A. H., 4,340,160, Cl. 222-595.000.

Thiessen, Robert J.: *See*—
Whalen-Shaw, Michael J.; and Thiessen, Robert J., 4,340,659, Cl. 430-64.000.

Thoma, Martin: *See*—
Mielsch, Gotz; Dunker, Rolf; and Thoma, Martin, 4,340,620, Cl. 427-292.000.

Thomas, Erwin: *See*—
Rapp, Guenther; Jockers, Kurt; and Thomas, Erwin, 4,340,575, Cl. 423-387.000.

Thomas, Harold T.: *See*—
Hollister, Kenneth R.; and Thomas, Harold T., 4,340,655, Cl. 430-14.000.

Thompson, David L.; McDonald, Ray S.; Lee, Yan S.; and Stein, Marc T., to Medtronic, Inc. Body stimulator having selectable stimulation energy levels. 4,340,062, Cl. 128-419.0PG.

Thompson, Gregory J.; and Vickers, Anthony G., to UOP Inc. Catalyst regeneration apparatus. 4,340,566, Cl. 422-143.000.

Thompson, Norman D., to Towmotor Corporation. Load responsive damping system. 4,340,235, Cl. 280-6.00H.

Thompson, Robert E.; and McNinney, Richard P., to Schmidt Manufacturing, Inc. Sandblasting methods and apparatus. 4,339,897, Cl. 51-436.000.

Thompson, Wayne L.: *See*—
Parke, Patrick P.; Bauer, Brady G.; Meitl, Kenneth G.; Thompson, Wayne L.; and Voegeli, Thomas J., 4,340,182, Cl. 239-680.000.

Thomson-CSF: *See*—
Papuchon, Michel; and Puech, Claude, 4,340,272, Cl. 350-96.140.

Thornton, John N.: *See*—
Thwaites, Peter J.; and Thornton, John N., 4,340,441, Cl. 156-512.000.

Thwaites, Peter J.; and Thornton, John N., to DuFaylite Developments Limited. Slicing web material. 4,340,441, Cl. 156-512.000.

Thyssen Industrie AG: *See*—
Strugala, Alfred; Dittrich, Erich; and Siewert, Helmut, 4,339,937, Cl. 72-110.000.

Tiefel, Thomas H.: *See*—
Jin, Sungho; and Tiefel, Thomas H., 4,340,434, Cl. 148-31.550.
Jin, Sungho; and Tiefel, Thomas H., 4,340,435, Cl. 148-31.570.

Tijssen, Jan: *See*—
Duyzings, Wilhelmus G.; van der Loos, Jozef L. M.; and Tijssen, Jan, 4,340,723, Cl. 528-497.000.

Timex Corporation: *See*—
Migeon, Jean P., 4,340,560, Cl. 264-249.000.

Timpl, Rupert, to Max-Planck-Gesellschaft zur Forderung der Wissenschaften e.V. Process for the immunological determination of basal membrane material and new basal membrane suitable therefor. 4,340,581, Cl. 424-1.000.

Tipper Tie, Inc.: *See*—
MacKay, Frederic M.; Winders, Gordon R.; and Whittlesey, Thomas E., 4,339,940, Cl. 72-402.000.

Toby, John J. Copyholder. 4,340,298, Cl. 355-75.000.

Toda, Kohji; Takahashi, Koji; and Matsufuji, Isao, to TDK Electronics Co., Ltd.; and Toda, Kohji. Photoelectric transfer device. 4,340,506, Cl. 252-501.100.

Togawa, Susumu: *See*—
Tanaka, Yoshio; Togawa, Susumu; and Sakoda, Akinori, 4,340,361, Cl. 432-128.000.

Togneri, Mauro G. Scanning system using alternating current for indicating the open, closed and ground condition of a contact. 4,340,852, Cl. 324-51.000.

Tohkairin, Akira: *See*—
Kanamaru, Hisanobu; Okabe, Moisei; Tatsumi, Hideo; Tohkairin, Akira; and Kasama, Ryoji, 4,339,873, Cl. 29-598.000.

Toja, Emilio; Omodei-Sale, Amedeo; and Selva, Domenica, to Gruppo Lepetit S.p.A. Antimicrobial 3H-naphtho[1,2-d]imidazoles. 4,340,607, Cl. 424-273.00B.

Tokyo Shibaura Denki Kabushiki Kaisha: *See*—
Asano, Masamichi; and Iwahashi, Hiroshi, 4,340,943, Cl. 365-194.000.
Iwamura, Soichi; Nishida, Yasuaki; Yamato, Toshimi; Sawazaki, Norikazu; Nishi, Yoshio; Watanabe, Masaharu; and Endo, Norio, 4,340,953, Cl. 369-126.000.
Miyazawa, Yoshiaki, 4,340,823, Cl. 307-66.000.
Oonishi, Toshiyuki; Tsutsumi, Masato; and Nakagawa, Noboru, 4,340,404, Cl. 62-198.000.
Sato, Kouji, 4,340,834, Cl. 310-313.00D.

Tomcufcik, Andrews S.; Wright, William B., Jr.; and Marsico, Joseph W., Jr., to American Cyanamid Company. 3-(α-Substituted-benzyl)-2,3-dihydrothiazolo [3,2-a][1,3]diazacyclan-3-ol derivatives. 4,340,734, Cl. 544-282.000.

Tomita, Fusao; Matsuda, Yuzura; Shirahata, Kunikatsu; Takahashi, Keiichi; Nakano, Hirofumi; Sato, Tomoyasu; Okubo, Shuji; and Nakamura, Nobuo, to Kyowa Hakko Kogyo Co., Ltd. Novel compound DC-38-V and process for production thereof. 4,340,725, Cl. 536-1.100.

Toray Industries, Inc.: *See*—
Aya, Toshihiko; and Kubo, Yasushi, 4,340,697, Cl. 525-420.000.
Endo, Tadakazu; and Saitoh, Shigemitsu, 4,340,631, Cl. 428-89.000.

Toray Silicone Company, Ltd.: *See*—
Matsushita, Takao; and Hirai, Kazuo, 4,340,090, Cl. 138-177.000.

Torborg, Ralph H.: *See*—
Nelson, Lorne W.; and Torborg, Ralph H., 4,340,355, Cl. 431-20.000.

Toth, Andras; Toth nee Palotai, Emese; Olah, Jozsef; Bitskey, Jozsef; and Bulkai, Lajos, to Vizgazdalkodasi Tudomanyos Kutatokozpont. Process and equipment for ultrasonic conditioning of sewage sludges. 4,340,488, Cl. 210-705.000.

Toth nee Palotai, Emese: *See*—
Toth, Andras; Toth nee Palotai, Emese; Olah, Jozsef; Bitskey, Jozsef; and Bulkai, Lajos, 4,340,488, Cl. 210-705.000.

Towle, Herbert C.: *See*—
Marshall, Albert H.; Shaw, Bon F.; Grimmer, Paul D.; Towle, Herbert C.; and Bond, Gary M., 4,340,370, Cl. 434-22.000.

Towmotor Corporation: *See*—
Jobling, Lancelot A.; Sabec, Charles J.; and Stump, Ronald C., 4,339,919, Cl. 60-322.000.
Thompson, Norman D., 4,340,235, Cl. 280-6.00H.

Townsend, Peter, to Metex Corporation. Pile driver cushion. 4,340,210, Cl. 267-137.000.

Tox-Dubel-Werk Richard W. Heckhausen KG: *See*—
Reidel, Josef, 4,340,330, Cl. 411-33.000.

Toyo Boseki Kabushiki Kaisha: *See*—
Kotera, Nobukazu; Mizumura, Yutaka; and Miyake, Hideo, 4,340,519, Cl. 523-414.000.

Toyo Seikan Kaisha, Ltd.: *See*—
Ishibashi, Kazuhisa; and Omi, Hidehiko, 4,340,801, Cl. 219-10.710.
Mori, Fumio; Matsuda, Gunji; Yoshida, Toshihiko; and Nagashima, Shigeru, 4,340,149, Cl. 215-343.000.

Toyoda Gosei Co., Ltd.: *See*—
Hayashi, Keizo, 4,339,860, Cl. 29-413.000.

Toyoda, Takashi; Ohba, Yozo; and Yamanaka, Masaaki, to Oji Yuka Goseishi Co., Ltd. Synthetic paper comprising an olefin-based resin and an adduct. 4,340,639, Cl. 428-338.000.

Toyota Jidosha Kogyo Kabushiki Kaisha: *See*—
Ninomiya, Masakazu; Kiuchi, Hideo; Suzuki, Atsushi; and Kobayashi, Nobuyuki, 4,340,022, Cl. 123-453.000.

Tozzi, Vincenzo G. A. Device for cutting flowers, fruit and the like. 4,339,878, Cl. 30-298.000.

Tracy, Clarence J.: *See*—
Robinson, Frederick J.; and Tracy, Clarence J., 4,340,456, Cl. 204-192.00E.

Transcale AB: *See*—
Odlen, Lars, 4,340,780, Cl. 179-1.00D.

Trapp, Horst: *See*—
Klahr, Erhard; Hettche, Albert; Trieselt, Wolfgang; Stoeckigt, Dieter; and Trapp, Horst, 4,340,766, Cl. 568-625.000.

Trieselt, Wolfgang: *See*—
Klahr, Erhard; Hettche, Albert; Trieselt, Wolfgang; Stoeckigt, Dieter; and Trapp, Horst, 4,340,766, Cl. 568-625.000.

Trigon: *See*—
Teeple, Lawrence R., Jr., 4,340,860, Cl. 324-158.00F.

Troup, Diana C.: *See*—
Guerrero, Benjamin G.; Troup, Diana C.; and White, Peter C., 4,339,889, Cl. 46-135.00A.

Trout, Jerry: *See*—
Moshofsky, Jerome F.; and Trout, Jerry, 4,340,143, Cl. 209-158.000.

Troxel, Donald E., to AM International, Inc. Random screen generator apparatus for producing halftone images. 4,340,912, Cl. 358-283.000.

Troxler, Franz; and Seemann, Fritz, to Sandoz Ltd. 4-(2-Benzoyloxy-3-tert.-butylaminopropoxy-2-methyl indole. 4,340,541, Cl. 548-503.000.

TRW Inc.: *See*—
Atkin, Rupert L., 4,339,986, Cl. 91-375.00A.
Wahlers, Richard L.; and Osborne, Vernon E., 4,340,508, Cl. 252-520.000.

Tsuchihashi, Genichi; Mitamura, Shuichi; and Ogura, Katsuyuki, to Sagami Chemical Research Center. Alpha-thio-alpha-aryl-substituted alkanonitrile and process for preparing alpha-aryl-substituted alkanonitrile therefrom. 4,340,740, Cl. 548-169.000.
Tsuchihashi, Michihiro; Saito, Masato; Baba, Keiichi; and Matsushima, Yusaku, to Mitsubishi Denki Kabushiki Kaisha. Lighting equipment. 4,340,844, Cl. 315-283.000.
Tsui, Kwok W.: *See*—
D'Andrade, Bruce M.; Tsui, Kwok W.; and Yuen, Sing C. J., 4,340,373, Cl. 434-174.000.
Tsujimoto, Yasuhiro: *See*—
Ikeda, Yorifumi; and Tsujimoto, Yasuhiro, 4,340,485, Cl. 210-675.000.
Tsutsumi, Masato: *See*—
Oonishi, Toshiyuki; Tsutsumi, Masato; and Nakagawa, Noboru, 4,340,404, Cl. 62-198.000.
Tucker, Dempsey G.: *See*—
Gill, Ronald P.; Tucker, Dempsey G.; and Hull, John E., Jr., 4,340,920, Cl. 361-49.000.
Tudor, Thomas T., to Brown & Williamson Tobacco Corporation. Cigarette material having non-lipsticking properties. 4,340,074, Cl. 131-362.000.
Turner, James W.: *See*—
Huddleston, George R., Jr.; and Turner, James W., 4,340,702, Cl. 526-70.000.
Uchiyama, Masaki: *See*—
Kiuchi, Masashi; Takasu, Yoshio; Fukumoto, Hiroshi; Hino, Takashi; Uchiyama, Masaki; and Mitsuhashi, Yasuo, 4,340,660, Cl. 430-106.600.
Ueda, Shigeki; and Takano, Teruhisa, to Matsushita Electric Industrial Co., Ltd. Voice-controlled safety arrangement heating apparatus. 4,340,798, Cl. 219-10.55B.
Ueda, Shigeki; Takano, Teruhisa; and Suzuki, Ryuji, to Matsushita Electric Industrial Co., Ltd. Heating apparatus with voice actuated door opening mechanism. 4,340,799, Cl. 219-10.55C.
Ueda, Shigeki; and Takano, Teruhisa, to Matsushita Electric Industrial Co., Ltd. Heating apparatus having voice command control operative in a conversational processing manner. 4,340,800, Cl. 219-10.55B.
Ueda, Shigeki: *See*—
Takano, Teruhisa; and Ueda, Shigeki, 4,340,797, Cl. 219-10.55B.
Uemura, Yahiro; Nagatomo, Midori; Funakoshi, Satoshi; and Suyama, Tadakazu, to Green Cross Corporation, The. Antithrombin preparation and process for the production thereof. 4,340,589, Cl. 424-101.000.
Ulbricht, Roger; and Cavalucci, Ralph, to Flour City Architectural Metals. Safety window of the tilt and turn type. 4,339,892, Cl. 49-192.000.
Umemura, Kazuhiro: *See*—
Ichikawa, Akira; Nakata, Kazuo; Nakajima, Akira; Ohta, Yoshihiro; and Umemura, Kazuhiro, 4,340,781, Cl. 179-1.0SA.
Umetsu, Shinjiro, to Nippon Electric Co., Ltd. Selective calling receiver including a voltage converter with low power consumption. 4,340,973, Cl. 455-228.000.
Union Carbide Corporation: *See*—
Adams, Richard C., 4,340,653, Cl. 429-133.000.
Bullman, Allan R., 4,340,524, Cl. 524-297.000.
Coleman, Larry M., 4,340,574, Cl. 423-347.000.
Doshi, Kishore J.; and Patel, Kirit M., 4,340,398, Cl. 55-25.000.
Gross, Laurence H.; and Sauers, Marvin E., 4,340,562, Cl. 264-328.200.
Knopf, Robert J., 4,340,497, Cl. 252-188.30R.
Marsden, James G.; and Pepe, Enrico J., 4,340,520, Cl. 523-209.000.
Morlino, Robert J.; Decker, Quintin W.; and Marcus, Erich, 4,340,382, Cl. 8-137.000.
United Kingdom Atomic Energy Authority: *See*—
Clayton, Colin G.; and Wormald, Malcolm R., 4,340,443, Cl. 376-342.000.
United Kingdom of Great Britain and Northern Ireland, The Secretary of State for Defence in Her Britannic Majesty's Government of the: *See*—
Ball, Geoffrey; Deadman, Harry A.; Smith, John G.; and Vokes, John C., 4,339,870, Cl. 29-576.00B.
United States of America
Air Force: *See*—
Campbell, George S., 4,340,197, Cl. 244-3.100.
Goronkin, Herbert, 4,340,900, Cl. 357-56.000.
Kron, Gerald J., 4,340,371, Cl. 434-59.000.
Meyer, Thomas W., 4,340,837, Cl. 313-259.000.
Army: *See*—
Segars, Ronald A., 4,340,850, Cl. 323-218.000.
Energy: *See*—
Anderson, Paul R.; and Miller, Wayne J., 4,340,407, Cl. 65-21.400.
Harak, Arnold E., 4,340,463, Cl. 208-11.00R.
Hise, Eugene C., Jr.; and Holman, Allen S., 4,340,468, Cl. 209-214.000.
Raistrick, Ian D.; Godshall, Ned A.; and Huggins, Robert A., 4,340,652, Cl. 429-112.000.
Rao, V. Udaya S.; and Gormley, Robert J., 4,340,503, Cl. 252-459.000.
Steyert, William A., Jr.; and Overton, William C., Jr., 4,340,405, Cl. 62-514.00R.
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Breland, William M.; Guilinger, Terry R.; and Schechter, Robert S., 4,340,253, Cl. 299-5.000.
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Barrett, Charles A.; Lowell, Carl E.; and Khan, Abdus S. Ni-CrAl ternary alloy having improved cyclic oxidation resistance. 4,340,425, Cl. 148-428.000.
Bush, Harold G.; and Wallsom, Richard E. Mechanical end joint system for structural column elements. 4,340,318, Cl. 403-217.000.
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Kirts, Richard E., 4,339,930, Cl. 62-235.100.
Lawrence, Gail W.; and Adolph, Horst G., 4,340,755, Cl. 564-233.000.
U.S. Philips Corporation: *See*—
Van Mil, Job F. P., 4,340,869, Cl. 330-310.000.
United States Steel Corporation: *See*—
Weinert, James D., 4,340,616, Cl. 427-47.000.
United Technologies Corporation: *See*—
Cheney, Marvin C., 4,340,335, Cl. 416-138.000.
Fitzpatrick, Peter R.; Meyerand, Russell G., Jr.; and Shotwell, Kenneth E., 4,339,929, Cl. 62-79.000.
Mongeon, Robert J., 4,340,299, Cl. 356-28.500.
Stack, Timothy F.; and Shoemaker, George T., 4,340,881, Cl. 340-347.00R.
Universal Pioneer Corporation: *See*—
Kosaka, Minoru, 4,340,950, Cl. 369-44.000.
Universita' Degli Studi di Napoli: *See*—
Campanile, Armando; Carlomagno, Giovanni M.; De Vita, Angelo; Donsi, Giorgio; Massimilla, Leopoldo; and Scognamiglio, Agostino, 4,340,400, Cl. 55-269.000.
University of Alabama, The Board of Trustees of the: *See*—
Barnes, Gary T., 4,340,818, Cl. 250-509.000.
University of Pittsburgh: *See*—
Schiller, Julian G.; Wingard, Lemuel B., Jr.; and Liu, Chung-Chiun, 4,340,448, Cl. 204-1.00T.
University of Virginia, The: *See*—
Arnold, William P., 4,340,667, Cl. 435-20.000.
University Patents, Inc.: *See*—
Bourque, Don P., 4,340,676, Cl. 435-232.000.
UOP Inc.: *See*—
Neuzil, Richard W.; and Priegnitz, James W., 4,340,724, Cl. 536-127.000.
Pressman, John R., 4,339,936, Cl. 72-77.000.
Qualeatti, Gail M.; and Germanas, Dalia, 4,340,546, Cl. 260-409.000.
Thompson, Gregory J.; and Vickers, Anthony G., 4,340,566, Cl. 422-143.000.
Upjohn Company, The: *See*—
Manis, Jack J.; and Highlander, Sarah K., 4,340,674, Cl. 435-172.000.
Shephard, Kenneth P., 4,340,538, Cl. 260-239.55D.
Usami, Kiyoshi: *See*—
Iwata, Yasuhiro; Usami, Kiyoshi; Nabeta, Teiichi; Naganoma, Masanori; and Kojima, Yasuhumi, 4,340,113, Cl. 165-25.000.
Utagawa, Ken: *See*—
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Utsch, Francis V.: *See*—
de la Burde, Roger Z.; Mait, Russell B.; and Utsch, Francis V., 4,340,142, Cl. 209-11.000.
Uyeda, Stanley T.: *See*—
Springett, Charles N.; Abramovich, Dan; Uyeda, Stanley T.; and Radu, E. John, 4,340,322, Cl. 405-168.000.
Vadas, Leslie; and Sabo, Bert M. Loader and dispenser for dental amalgam. 4,340,367, Cl. 433-89.000.
Vaeth, Guenter: *See*—
Ohlinger, Manfred; Vaeth, Guenter; Mueller, Norbert; and Wettstein, Eugen, 4,340,494, Cl. 252-62.560.
Vaginay, Yves: *See*—
Bonnebat, Claude; Roullet, Gilbert; and Vaginay, Yves, 4,340,721, Cl. 528-272.000.
Valdes, Silverio A., to GTE Sylvania Incorporated. CRT Spot suppression circuit. 4,340,910, Cl. 358-243.000.
Vale, Pearl R.: *See*—
Vale, Peter R., 4,340,064, Cl. 128-496.000.
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van der Lely, Cornelis. Soil cultivating implements. 4,340,118, Cl. 172-49.500.
Van der Linde, Robert: *See*—
De Jongh, Rudolph O/; Visser, Adrianus; and Van der Linde, Robert, 4,340,698, Cl. 525-438.000.
van der Loos, Jozef L. M.: *See*—
Duyzings, Wilhelmus G.; van der Loos, Jozef L. M.; and Tijssen, Jan, 4,340,723, Cl. 528-497.000.
Van Eenam, Donald N., to Monsanto Company. Wet strength polymers. 4,340,692, Cl. 525-329.000.
van Geel, Jacobus N. C.; Dobbels, Frans M.; and Theunissen, Walther A. H., to Deutsche Gesellschaft fur Wiederaufarbeitung. Overflow system having pneumatic pressure control. 4,340,160, Cl. 222-595.000.
Van Horn, William E., II, to Cool Curtain, Inc. Strip door hanging system. 4,340,106, Cl. 160-332.000.
VanManen, Dick T., to Voplex Corporation. Caulker for dispensing two viscous components. 4,340,154, Cl. 222-94.000.
Van Mil, Job F. P., to U.S. Philips Corporation. Amplifier for use in a line circuit. 4,340,869, Cl. 330-310.000.

van Mil, Martinus P. G., to Stork PMT B.V. Method of cutting a slaughtered bird from vent to breast. 4,339,849, Cl. 17-52.000.
Van Mol, John D. Liquid filter. 4,340,470, Cl. 210-94.000.
Vannelli, Roger B.: *See—*
Hobson, Russell B., Jr.; and Vannelli, Roger B., 4,340,477, Cl. 210-241.000.
van Ooij, Willy J.: *See—*
Frassek, Karl-Heinz; and van Ooij, Willy J., 4,340,515, Cl. 524-274.000.
Van Poucke, Raphael K.: *See—*
Monbaliu, Marcel J.; De Winter, Walter F.; and Van Poucke, Raphael K., 4,340,664, Cl. 430-449.000.
van Weelden, Jan H.; and Rietvink, Adrianus H., to Estel Hoogovens B.V. Bag-filter type dust collector. 4,340,401, Cl. 55-305.000.
Varian Associates, Inc.: *See—*
Abbott, Seth R., 4,340,496, Cl. 252-184.000.
Carter, James C., Jr.; and Mansfield, Stanley, 4,340,825, Cl. 307-116.000.
Vasta, Joseph A., to Du Pont de Nemours, E. I., and Company. Process for making vinyl oxazoline drying oil esters. 4,340,741, Cl. 548-237.000.
Vaughan, David E. W.; Edwards, Grant C.; and Barrett, Michael G., to W. R. Grace & Co. Preparation of zeolites. 4,340,573, Cl. 423-328.000.
Vayssiere, Pierre; Roederer, Charles; Grosjean, Jean-Claude; Grave, Roland; Schleimer, F.; Goedert, F.; Henrion, R.; Lorang, L.; and Colling, J., to Institut de Recherches de la Siderurgie Francaise. Refractory piece permeable to gases. 4,340,208, Cl. 266-220.000.
VDO Adolf Schindling AG: *See—*
Gothe, Diethard, 4,340,945, Cl. 368-6.000.
Veitscher Magnesitwerke-Aktiengesellschaft: *See—*
Hoedl, Fritz; Kimura, Morihiro; and Yasuda, Yoshio, 4,340,360, Cl. 432-119.000.
Vereinigte Aluminium-Werke Aktiengesellschaft: *See—*
Greber, Jorg F.; and Winkhaus, Gunter, 4,340,579, Cl. 423-625.000.
Ver Strate, Gary: *See—*
Brois, Stanley J.; and Ver Strate, Gary, 4,340,694, Cl. 525-342.000.
Vescelius, Lee E.: *See—*
Bohm, Georg G. A.; Hamed, Gary R.; and Vescelius, Lee E., 4,340,684, Cl. 525-194.000.
Vickers, Anthony G.: *See—*
Thompson, Gregory J.; and Vickers, Anthony G., 4,340,566, Cl. 422-143.000.
Victor Company of Japan, Ltd.: *See—*
Hirata, Atsumi; and Kayanuma, Kanji, 4,340,907, Cl. 358-128.600.
Vilenski, Dan: *See—*
Bilane, Glenn B.; Rubin, Lawrence M.; Soffa, Albert; and Vilenski, Dan, 4,340,166, Cl. 228-179.000.
Vishnyak, Julian I.: *See—*
Grishin, Boris P.; Gruznov, Alexandr G.; Romanov, Leonid M.; Vishnyak, Julian I.; Shugaeva, Nina A.; Bychkov, Nikolai M.; Lipets, Konstantin V.; and Zotov, Alexandr I., 4,340,720, Cl. 528-232.000.
Visser, Adrianus: *See—*
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Toth, Andras; Toth nee Palotai, Emese; Olah, Jozsef; Bitskey, Jozsef; and Bulkai, Lajos, 4,340,488, Cl. 210-705.000.
Voegeli, Otto, to International Business Machines Corporation. Permalloy-first bubble switch. 4,340,942, Cl. 365-16.000.
Voegeli, Thomas J.: *See—*
Parke, Patrick P.; Bauer, Brady G.; Meitl, Kenneth G.; Thompson, Wayne L.; and Voegeli, Thomas J., 4,340,182, Cl. 239-680.000.
Vogelsberg, Dieter, to Siemens Aktiengesellschaft. Device for SZ twisting of twist elements of electric cables and wires. 4,339,913, Cl. 57-294.000.
Voisin, Guy; Jansen, Franz; and Gros, Pierre, to C M Industries. Cytotoxic products formed by covalent bonding of the A chain of ricin with an antibody and the process for their preparation and use. 4,340,535, Cl. 260-112.00B.
Vokes, John C.: *See—*
Ball, Geoffrey; Deadman, Harry A.; Smith, John G.; and Vokes, John C., 4,339,870, Cl. 29-576.00B.
Volk, Joseph A., Jr., to Beta Corporation of St. Louis. Automatic control for a pellet producing apparatus. 4,340,937, Cl. 364-468.000.
Volkert, Bernd; and Dorbandt, Klaus, to Deutsche Angelgerate Manufaktur (DAM) Hellmuth Kuntze Gesellschaft & Co. KG. Return feed locking mechanism for fishing reels. 4,340,189, Cl. 242-84.10R.
Volkswagenwerk Aktiengesellschaft: *See—*
Barnert, Konrad; and Lohner, Ingolf, 4,340,019, Cl. 123-256.000.
Volpeliere, Jacky: *See—*
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von Sichart, Frithjof: *See—*
Wintzer, Klaus; Zemanek, Josef; and von Sichart, Frithjof, 4,340,962, Cl. 370-100.000.
Voplex Corporation: *See—*
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W. R. Grace & Co.: *See—*
Vaughan, David E. W.; Edwards, Grant C.; and Barrett, Michael G., 4,340,573, Cl. 423-328.000.
Wada, Akihiro; Tazaki, Kichiya; Tahara, Tamotsu; Suzuki, Hiroshi; and Mizutani, Yukihisa, to Asahi-Dow Limited. Injection molded articles with improved surface characteristics, production of same and apparatus therefor. 4,340,551, Cl. 264-25.000.
Waddle, Russell E.: *See—*
Moshofsky, Jerome F.; and Trout, Jerry, 4,340,143, Cl. 209-158.000.
Wagner, Karl: *See—*
Stemme, Otto; Staudacher, Frank; Lermann, Peter; Danhauser, Justus; Engelsmann, Dieter; and Wagner, Karl, 4,340,288, Cl. 354-171.000.
Wahlers, Richard L.; and Osborne, Vernon E., to TRW Inc. Resistance material, resistor and method of making the same. 4,340,508, Cl. 252-520.000.
Wahren, Douglas; and Akesson, Rolf A. L., to Aktiebolaget Karlstads Mekaniska Werkstad. Flow distributor for a liquid film discharging device. 4,340,011, Cl. 118-410.000.
Wakabayashi, Hideo; and Teraoka, Kenro, to Sony Corporation. Control level displaying apparatus. 4,340,908, Cl. 358-194.100.
Waldhauser, Steven J. A.; and Masbruch, Richard D., to Wetrok, Inc. Squeegee support assembly for automatic floor cleaning machines. 4,339,841, Cl. 15-359.000.
Waldmann, Gunter. Process and apparatus for the separation of harmful substances from waste gases, particularly in the drying of wood chips. 4,339,883, Cl. 34-27.000.
Walker, Derek: *See—*
Aston, William C.; and Walker, Derek, 4,340,344, Cl. 425-149.000.
Wallace Murray Corporation: *See—*
Bremer, Robert C., Jr., 4,339,963, Cl. 74-574.000.
Wallis, Bernard J. Punch retainer. 4,339,976, Cl. 83-684.000.
Wallsom, Richard E.: *See—*
United States of America, National Aeronautics and Space Administration; Bush, Harold G.; and Wallsom, Richard E., 4,340,318, Cl. 403-217.000.
Walter, Lothar: *See—*
Olschewski, Armin; Brandenstein, Manfred; Walter, Lothar; and Kunkel, Heinrich, 4,340,135, Cl. 192-98.000.
Walters, Peter E.: *See—*
Percival, William S.; and Walters, Peter E., 4,340,862, Cl. 324-309.000.
Walworth, Vivian K., to Polaroid Corporation. Method for making photosensitive silver halide emulsion layers. 4,340,666, Cl. 430-569.000.
Wang, Kang-Lung: *See—*
Reihl, Robert F.; and Wang, Kang-Lung, 4,339,869, Cl. 29-576.00B.
Wang, Samuel S.; and Scanlon, Michael J., to American Cyanamid Company. Flotation of coal with latex emulsions of hydrocarbon animal or vegetable based oil. 4,340,467, Cl. 209-166.000.
Ward, Gene R., to Minnesota Mining and Manufacturing Company. Platform rocking chair springs. 4,340,250, Cl. 297-264.000.
Wardell, Joe R., Jr.: *See—*
Brenner, L. Martin; and Wardell, Joe R., Jr., 4,340,600, Cl. 424-258.000.
Warner, Richard: *See—*
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Warner & Swasey Company, The: *See—*
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Washington University: *See—*
Skelton, John; Clark, Richard E.; and Davis, Robert B., 4,340,091, Cl. 139-383.00R.
Wason, Satish K., to J. M. Huber Corporation. High fluoride compatibility dentifrice abrasives and compositions. 4,340,583, Cl. 424-52.000.
Wason, Satish K., to J. M. Huber Corporation. Therapeutic dentifrices in unlined container and methods. 4,340,584, Cl. 424-52.000.
Watanabe, Hiroyuki: *See—*
Saito, Isamu; and Watanabe, Hiroyuki, 4,340,219, Cl. 273-1.0GA.
Watanabe, Masaharu: *See—*
Iwamura, Soichi; Nishida, Yasuaki; Yamato, Toshimi; Sawazaki, Norikazu; Nishi, Yoshio; Watanabe, Masaharu; and Endo, Norio, 4,340,953, Cl. 369-126.000.
Watanabe, Masaki; Shimoyama, Hiroshi; and Suzuki, Keiji, to Honda Giken Kogyo Kabushiki Kaisha. Stabilized motor vehicle. 4,340,125, Cl. 180-215.000.
Watanabe, Sakuji: *See—*
Ohtsubo, Yoshiaki; and Watanabe, Sakuji, 4,340,284, Cl. 354-50.000.
Watson, Wade B. Irrigation valve apparatus. 4,340,081, Cl. 137-364.000.
Watts, William M., to Siecor Corporation. Communications cable having combination shielding-armor member. 4,340,771, Cl. 174-36.000.
Wayne State University: *See—*
Brooks, Samuel C., 4,340,602, Cl. 424-238.000.
Wear, Frederick C.: *See—*
McKinney, Howard F.; Gardner, David R.; and Wear, Frederick C., 4,340,611, Cl. 426-241.000.
Webb, Jimmy L.; and Mehta, Bharat M., to General Electric Company. Method for making aromatic bis(ether anhydrides). 4,340,545, Cl. 549-241.000.
Webb, Lloyd E. Machine for chilling drinking glasses. 4,340,263, Cl. 312-266.000.
Webers, Werner: *See—*
Brandes, Gunter; Neier, Wilhelm; Wollner, Johannes; Webers, Werner; and deVleesschauwer, Walter F., 4,340,769, Cl. 568-899.000.
Webinger, George, to Champion International Corporation. Carton with locking mechanism for slidable top and bottom. 4,340,168, Cl. 229-23.0BT.
Webinger, George P., to Champion International Corporation. Collapsible tray. 4,340,169, Cl. 229-31.00R.

Webster, Raymond G. Hydraulic rams. 4,339,989, Cl. 92-53.000.

Weeks, Brian: *See—*
Aldred, Alan C. G.; and Weeks, Brian, 4,340,517, Cl. 524-59.000.

Weemhoff, James H.: *See—*
Bakula, Richard E.; Maly, Dennis L.; and Weemhoff, James H., 4,340,932, Cl. 364-200.000.

Wegmann, Jacques, to Rohner AG Pratteln. Aqueous-media dispersible, highly-concentrated, finely-disperse, low-dispersant or free-of-dispersant preparation of hardly water-soluble to water-insoluble active substances in solid form, process for their preparation and their application. 4,340,531, Cl. 524-556.000.

Wehde, Heinz, to Teldix GmbH. Magnetic bearing arrangement. 4,340,261, Cl. 308-10.000.

Weigand, James R.; and Streeter, Robert D., to Magnavox Consumer Electronics Co. Circuit for demodulating amplitude and angle modulated broadcast signals. 4,340,782, Cl. 179-1.0GS.

Weigele, Manfred: *See—*
Focella, Antonino; Heveran, John E.; Teitel, Sidney; and Weigele, Manfred, 4,340,736, Cl. 544-301.000.

Weiner, Milton L., to Mobil Oil Corporation. Heat sealable packaging film comprising propylene polymer substrate and a surface layer blend of ethylene copolymer and propylene copolymer. 4,340,640, Cl. 428-349.000.

Weiner, Milton L., to Mobil Oil Corporation. Heat sealable packaging film comprising propylene polymer substrate and a surface layer blend of ethylene copolymer and propylene copolymer. 4,340,641, Cl. 428-349.000.

Weinert, Friedrich. Power wheel. 4,340,970, Cl. 376-208.000.

Weinert, James D., to United States Steel Corporation. Method for decreasing the wear on a surface. 4,340,616, Cl. 427-47.000.

Weise, Stanley A., to Dresser Industries, Inc. Slip deployment mechanism. 4,340,116, Cl. 166-215.000.

Weitzen, William, to General Technology Applications, Inc. Dissolving polymers in compatible liquids and uses thereof. 4,340,076, Cl. 137-13.000.

Weld, Richard G., to Weldwheels, Inc. Wire spoke automotive wheel manufacturing method. 4,339,859, Cl. 29-159.030.

Weldwheels, Inc.: *See—*
Weld, Richard G., 4,339,859, Cl. 29-159.030.

Wells, Herbert A.; Hochner, Walter L.; and Matacek, George F., to International Coatings Co., Inc. Manufacture of flock transfers. 4,340,632, Cl. 428-90.000.

Wenderoth, Karl: *See—*
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Wengenroth, Kurt: *See—*
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Wengert, Rolf: *See—*
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Wenzlaff, Axel: *See—*
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Wepner, Joachim; Wengenroth, Kurt; and Zuhlke, Jochen, to Peddinghaus, Rolf. Method and apparatus for volumetric partitioning of rod-like material. 4,339,972, Cl. 83-13.000.

Wernau, William C.; and Wernau, William C., to Pfizer Inc.; and Pfizer Inc. Xanthomonas biopolymer for use in displacement of oil from partially depleted reservoirs. 4,340,678, Cl. 435-253.000.

Wernau, William C.: *See—*
Wernau, William C.; and Wernau, William C., 4,340,678, Cl. 435-253.000.

West, Rodney J.: *See—*
Capel, Antony C.; Yan, George; Gilks, George E.; and West, Rodney J., 4,340,961, Cl. 370-84.000.

Western Electric Co., Inc.: *See—*
Bankes, Kristen E.; Large, Donald M.; and Reinhard, Fred J., 4,340,323, Cl. 406-83.000.
Chisholm, William M., 4,340,092, Cl. 140-147.000.
Chisholm, William M.; Davis, George S.; and Dougherty, James C., 4,340,093, Cl. 140-147.000.
Chisholm, William M.; and Dougherty, James C., 4,340,094, Cl. 140-147.000.

Wetrok, Inc.: *See—*
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Wettstein, Eugen: *See—*
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Wetzel, Pierre: *See—*
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Whalen-Shaw, Michael J.; and Thiessen, Robert J., to Allied Paper Incorporated. Electrostatic masters. 4,340,659, Cl. 430-64.000.

Wham-O Mfg. Co.: *See—*
Kerkenbush, Darle L.; and Blaszcak, Peter P., Jr., 4,340,222, Cl. 273-61.00R.

White, David J.; and Roberts, Peter B., to Solar Turbines Incorporated. Combustion systems. 4,339,924, Cl. 60-733.000.

White, Dwain M.; and Loucks, George R., to General Electric Company. Formal-coupled polyphenylene oxides. 4,340,696, Cl. 525-390.000.

White, Peter C.: *See—*
Guerrero, Benjamin G.; Troup, Diana C.; and White, Peter C., 4,339,889, Cl. 46-135.00A.

Whittlesey, Thomas E.: *See—*
MacKay, Frederic M.; Winders, Gordon R.; and Whittlesey, Thomas E., 4,339,940, Cl. 72-402.000.

Widder Corporation: *See—*
Krieg, Adrian H., 4,340,804, Cl. 219-137.410.

Wiezer, Hartmut; and Pfahler, Gerhard, to Hoechst Aktiengesellschaft. Ethers based on polyalkyl-1-oxadiazaspirodecanes. 4,340,534, Cl. 524-99.000.

Wilcox, Donald G.; and Zambrano, Nobile, to Show-Pak, Incorporated. Blow molded carrying case. 4,340,139, Cl. 206-349.000.

Wilcox, Donald G.; and Zambrano, Nobile, to Show-Pak, Incorporated. Package construction. 4,340,140, Cl. 206-373.000.

Wilden, James K., to Wilden Pump & Engineering Co., Inc. Air driven reciprocating device. 4,339,985, Cl. 91-307.000.

Wilden Pump & Engineering Co., Inc.: *See—*
Wilden, James K., 4,339,985, Cl. 91-307.000.

Wiley, Bruce F., to Phillips Petroleum Company. Downhole sampling method and apparatus. 4,339,947, Cl. 73-151.000.

Wilkinson, William T. Resilient type exerciser for simulating climbing. 4,340,218, Cl. 272-136.000.

Willenbacher, Erich, to Pfaff Industriemaschinen GmbH. Sewing machine with work guiding device. 4,340,001, Cl. 112-143.000.

William H. Rorer, Inc.: *See—*
Chou, Billy J., 4,340,609, Cl. 424-322.000.

Williams, James J., Jr.; and Dischert, Robert A., to RCA Corporation. Hardware reduction by truncation of selected number of most significant bits for digital video system using subsampling and adaptive reconstruction. 4,340,940, Cl. 364-745.000.

Williams, Laurens R., II: *See—*
Fukui, George M.; Spencer, Herbert J.; and Williams, Laurens R., II, 4,340,679, Cl. 435-253.000.

Williams, Robert A. Chaff-flare test adapter switching system. 4,340,789, Cl. 200-11.00R.

Williams, Robert H., to Meadowbrook Resort, Inc. Solar heating system for a greenhouse or other building. 4,340,036, Cl. 126-452.000.

Williams, Steven E.: *See—*
Hargraves, David P.; Pauli, Jude A.; and Williams, Steven E., 4,340,202, Cl. 251-31.000.

Williams, Warren S. Surfboard locking device. 4,340,376, Cl. 441-74.000.

Williamson, Robert R., to Better Agricultural Goals Corporation. Reinforced container for bulk material. 4,340,379, Cl. 493-211.000.

Willinger, Allan H., to Willinger Bros., Inc. Artificial aquarium plant. 4,340,625, Cl. 428-17.000.

Willinger Bros., Inc.: *See—*
Willinger, Allan H., 4,340,625, Cl. 428-17.000.

Willis, Clive; and McKee, Terrence J., to Canadian Patents & Dev. Ltd. Rare-gas hydrogen-halide excimer laser with hydrogen additive. 4,340,968, Cl. 372-60.000.

Willmore, Bruce A. E.; and Greaves, Jeffrey C., to Imperial Chemical Industries Limited. Removal of olefin monomer from olefin polymer. 4,340,701, Cl. 526-68.000.

Willson, Richard F.: *See—*
Maffitt, Kent N.; and Willson, Richard F., 4,340,276, Cl. 350-164.000.

Wilmes, Manfred; and Marienfeld, Karl, to C. A. Weidmuller KG. Electrical terminal unit. 4,340,270, Cl. 339-95.00D.

Wilson, Craig R. Game racket and apparatus for adjusting the tension in the strings of a game racket. 4,340,225, Cl. 273-73.00E.

Wilson, Malcolm A.: *See—*
Pollock, David C. I.; and Wilson, Malcolm A., 4,340,484, Cl. 210-607.000.

Winders, Gordon R.: *See—*
MacKay, Frederic M.; Winders, Gordon R.; and Whittlesey, Thomas E., 4,339,940, Cl. 72-402.000.

Wingard, Lemuel B., Jr.: *See—*
Schiller, Julian G.; Wingard, Lemuel B., Jr.; and Liu, Chung-Chiun, 4,340,448, Cl. 204-1.00T.

Wingrove, Earl R., Jr., to General Electric Company. Automatic gray scale tracking system for cathode ray display devices. 4,340,904, Cl. 358-29.000.

Winkhaus, Gunter: *See—*
Greber, Jorg F.; and Winkhaus, Gunter, 4,340,579, Cl. 423-625.000.

Wintzer, Klaus; Zemanek, Josef; and von Sichart, Frithjof, to Siemens Aktiengesellshaft. Circuit arrangement for the synchronization of a digital subscriber station by a digital exchange in a PCM telecommunication network. 4,340,962, Cl. 370-100.000.

Witzel, Bruce E.: *See—*
Dybas, Richard A.; Grier, Nathaniel; and Witzel, Bruce E., 4,340,756, Cl. 564-367.000.

Wojciehowski, James P.: *See—*
Burch, Darrel W.; and Wojciehowski, James P., 4,339,916, Cl. 60-39.020.

Wolf, Karlheinz: *See—*
Nonn, Konrad; Laser, Joachim; Wolf, Karlheinz; Hornle, Reinhold; and Istel, Erich, 4,340,389, Cl. 8-620.000.

Wolf, Ludwig, Jr.: *See—*
Dennehey, T. Michael; Greff, Richard J.; and Wolf, Ludwig, Jr., 4,340,052, Cl. 128-247.000.

Wollner, Johannes: *See—*
Brandes, Gunter; Neier, Wilhelm; Wollner, Johannes; Webers, Werner; and deVleesschauwer, Walter F., 4,340,769, Cl. 568-899.000.

Wolowodiuk, Catherine: *See*—
Okinaka, Yutaka; and Wolowodiuk, Catherine, 4,340,451, Cl. 204-46.00G.

Wood, Kenneth O., to Gulf & Western Corporation. Supporting anvil for movable cutting platen. 4,339,974, Cl. 83-100.000.

Woodard, Lynn F., to Research Corporation. Brucellosis vaccine for cattle containing mycolate esters of trehalose. 4,340,588, Cl. 424-92.000.

Woodhead, Peter, to General Electric Company Limited, The. Electric amplifier circuits that respond to an input signal of either polarity to produce an output signal having a polarity corresponding to that of the input signal. 4,340,865, Cl. 330-69.000.

Woods, Stephen C.: *See*—
Griffiths, Kenneth G.; and Woods, Stephen C., 4,339,886, Cl. 40-595.000.

Woodside Construction, Inc.: *See*—
Ben-Shmuel, Dan; and Zacuto, Philip, 4,340,572, Cl. 423-242.000.

Wormald, Malcolm R.: *See*—
Clayton, Colin G.; and Wormald, Malcolm R., 4,340,443, Cl. 376-342.000.

Wright, William B., Jr.: *See*—
Tomcufcik, Andrews S.; Wright, William B., Jr.; and Marsico, Joseph W., Jr., 4,340,734, Cl. 544-282.000.

Wright, William E.; and Honnold, Fred V., Jr., to Carrier Corporation. Wrapper for a heat exchange unit. 4,340,115, Cl. 165-122.000.

Wuerzer, Bruno: *See*—
Eicken, Karl; and Wuerzer, Bruno, 4,340,418, Cl. 71-92.000.

Wuesthoff, Michael T., to Pfizer Inc. Winning bitter substances from hops. 4,340,763, Cl. 568-344.000.

Wunder, Friedrich: *See*—
Baltes, Herbert; Leupold, Ernst I.; and Wunder, Friedrich, 4,340,748, Cl. 560-177.000.

Xerox Corporation: *See*—
Kikuchi, Masatsugu, 4,340,895, Cl. 346-140.00R.
Ort, Donald L., 4,340,893, Cl. 346-1.100.
Raskin, Jerome S.; Hall, Warren L.; Holt, Charles P.; and Carlson, Gerald E., 4,340,807, Cl. 219-497.000.

Yajima, Masami: *See*—
Nohira, Hiroyuki; Fujii, Hiroshi; Yajima, Masami; and Fujimura, Rieko, 4,340,751, Cl. 562-401.000.

Yamabe, Masaaki; Kumai, Seisaku; and Munekata, Seiji, to Asahi Glass Company, Ltd. Process for producing fluorovinyl ether. 4,340,750, Cl. 560-183.000.

Yamabe, Masaaki: *See*—
Asawa, Tatsuro; Yamabe, Masaaki; and Miyake, Haruhisa, 4,340,680, Cl. 521-27.000.

Yamada, Noboru: *See*—
Mizushima, Yutaka; Yokoyama, Kazumasa; Nabeta, Kiichiro; Yamada, Noboru; and Suyama, Tadakazu, 4,340,594, Cl. 424-238.000.

Yamada, Takahiro; and Tanaka, Hiromichi, to Matsushita Electric Industrial Co., Ltd. Solid state area imaging apparatus. 4,340,909, Cl. 358-213.000.

Yamada, Yuji: *See*—
Koda, Akihide; Hori, Mikio; Yasumoto, Mitsugi; Yamawaki, Ichiro; Yamada, Yuji; and Takikawa, Katsuo, 4,340,543, Cl. 549-414.000.

Yamaguchi, Kunihiro: *See*—
Moteki, Tsutomu; Yamaguchi, Kunihiro; and Nakajima, Yoshikazu, 4,340,513, Cl. 524-13.000.

Yamaguchi, Masumi; Kawabata, Kenji; and Kumagai, Yoshimi, to Sharp Kabushiki Kaisha. Wireless temperature-sensing system inclusive of thermally-responsive oscillator. 4,340,796, Cl. 219-10.55B.

Yamaha Hatsudoki Kabushiki Kaisha: *See*—
Isaka, Yoshiharu, 4,339,964, Cl. 74-606.00R.

Yamamoto, Akira: *See*—
Nakamura, Toshiaki; and Yamamoto, Akira, 4,340,915, Cl. 360-61.000.

Yamamoto, Hiroshi, to Canon Kabushiki Kaisha. Camera system using stroboscope. 4,340,287, Cl. 354-128.000.

Yamamoto, Takaya: *See*—
Akiba, Shigeyuki; Suematsu, Yasuharu; Arai, Shigehisa; Kodaira, Masanobu; Itaya, Yoshio; Iga, Kenichi; Ota, Chuichi; Yamamoto, Takaya; and Sakai, Kazuo, 4,340,966, Cl. 372-45.000.

Yamamoto, Takushi: *See*—
Obayashi, Shigeji; Nakamura, Morio; Fujiki, Koichi; and Yamamoto, Takushi, 4,340,706, Cl. 526-207.000.

Yamamura, Akira; and Raj, Kuldip, to Ferrofluidics Corporation. Ferrofluid seal apparatus. 4,340,233, Cl. 277-1.000.

Yamanaka, Masaaki: *See*—
Toyoda, Takashi; Ohba, Yozo; and Yamanaka, Masaaki, 4,340,639, Cl. 428-338.000.

Yamashita, Akio; and Asakawa, Shirow, to Matsushita Electric Industrial Co., Ltd. Electrochromic display device. 4,340,624, Cl. 428-1.000.

Yamashita, Nobuo; and Nakahashi, Ken-ichi, to Olympus Optical Co., Ltd. Focusing method and apparatus for use in an optical system. 4,340,811, Cl. 250-201.000.

Yamashita, Sadahiko: *See*—
Onishi, Hiroshi; and Yamashita, Sadahiko, 4,340,975, Cl. 455-315.000.

Yamashita, Yoshimasa: *See*—
Nakamura, Takeshi; and Yamashita, Yoshimasa, 4,340,835, Cl. 310-321.000.

Yamato, Toshimi: *See*—
Iwamura, Soichi; Nishida, Yasuaki; Yamato, Toshimi; Sawazaki, Norikazu; Nishi, Yoshio; Watanabe, Masaharu; and Endo, Norio, 4,340,953, Cl. 369-126.000.

Yamaue, Yasunobu; and Ishioka, Tetsuo, to Kubota, Ltd. Offset type tractor. 4,340,128, Cl. 180-900.000.

Yamawaki, Ichiro: *See*—
Koda, Akihide; Hori, Mikio; Yasumoto, Mitsugi; Yamawaki, Ichiro; Yamada, Yuji; and Takikawa, Katsuo, 4,340,543, Cl. 549-414.000.

Yan, George: *See*—
Capel, Antony C.; Yan, George; Gilks, George E.; and West, Rodney J., 4,340,961, Cl. 370-84.000.

Yan, Tsoung-yuan: *See*—
Espenscheid, Wilton F.; and Yan, Tsoung-yuan, 4,340,252, Cl. 299-4.000.

Yang, Hung H., to Du Pont de Nemours, E. I., and Company. Spinning process. 4,340,559, Cl. 264-181.000.

Yano, Teruo: *See*—
Higuchi, Noboru; Yano, Teruo; and Ohnishi, Masahiro, 4,340,403, Cl. 55-523.000.

Yasuda, Yoshio: *See*—
Hoedl, Fritz; Kimura, Morihiro; and Yasuda, Yoshio, 4,340,360, Cl. 432-119.000.

Yasumoto, Mitsugi: *See*—
Koda, Akihide; Hori, Mikio; Yasumoto, Mitsugi; Yamawaki, Ichiro; Yamada, Yuji; and Takikawa, Katsuo, 4,340,543, Cl. 549-414.000.

Yeaple Corporation: *See*—
Yeaple, Ronald N., 4,340,069, Cl. 128-776.000.

Yeaple, Ronald N., to Yeaple Corporation. Force-sensitive probe and method of use. 4,340,069, Cl. 128-776.000.

Yee, Kwok C.; Preziosi, Anthony F.; Patel, Gordhanbhai N.; Chance, Ronald R.; Miller, Granville G.; and Baughman, Ray H., to Allied Corporation. Tempeature measurement and display of indicia using thermochromic polyacetylenes. 4,339,951, Cl. 374-162.000.

Yokohama Kiko Co., Ltd.: *See*—
Ohno, Akira; Katayama, Shitomi; Nomura, Suguru; Senaha, Susumu; Kyo, Suizo; Shimomura, Susumu; Akagami, Akira; and Imai, Hiroshi, 4,340,646, Cl. 428-429.000.

Yokokawa, Yasuo: *See*—
Mishiro, Mashahiro; Nishikawa, Tokio; Ohashi, Shigeyasu; and Yokokawa, Yasuo, 4,340,481, Cl. 210-500.200.

Yokoyama, Kazumasa: *See*—
Mizushima, Yutaka; Yokoyama, Kazumasa; Nabeta, Kiichiro; Yamada, Noboru; and Suyama, Tadakazu, 4,340,594, Cl. 424-238.000.

Yoshida, Masahiro: *See*—
Okamura, Koichi; Kusakabe, Susumu; Yoshida, Masahiro; and Hiraoka, Fumio, 4,339,983, Cl. 41-466.000.

Yoshida, Toshihiko: *See*—
Mori, Fumio; Matsuda, Gunji; Yoshida, Toshihiko; and Nagashima, Shigeru, 4,340,149, Cl. 215-343.000.

Young, Teddy R.: *See*—
Grillot, John W.; and Young, Teddy R., 4,339,961, Cl. 74-110.000.

Yu, Terry T.: *See*—
Ovshinsky, Stanford R.; Hines, Leon F.; Citkowski, Ronald W.; and Yu, Terry T., 4,340,662, Cl. 430-270.000.

Yuen, Sing C. J.: *See*—
D'Andrade, Bruce M.; Tsui, Kwok W.; and Yuen, Sing C. J., 4,340,373, Cl. 434-174.000.

Zaba, Tadeusz: *See*—
Eggmann, Jean; Graf, Hans; and Zaba, Tadeusz, 4,339,925, Cl. 60-757.000.

Zacuto, Philip: *See*—
Ben-Shmuel, Dan; and Zacuto, Philip, 4,340,572, Cl. 423-242.000.

Zahnradfabrik Friedrichshafen AG: *See*—
Blersch, Arthur, 4,340,133, Cl. 192-30.00W.

Zaidan Hojin Handotai Kenkyu Shinkokai: *See*—
Nishizawa, Jun-ichi; and Hayashi, Yutaka, 4,340,827, Cl. 307-477.000.

Zambrano, Nobile: *See*—
Wilcox, Donald G.; and Zambrano, Nobile, 4,340,139, Cl. 206-349.000.
Wilcox, Donald G.; and Zambrano, Nobile, 4,340,140, Cl. 206-373.000.

Zamiara, Anthony W., to Maplecrest Foods, Inc. Sausage coiling machine. 4,339,846, Cl. 17-1.00R.

Zannucci, Joseph S.; Sublett, Bobby J.; and Irick, Gether, Jr., to Eastman Kodak Company. Stabilized copolyester material. 4,340,718, Cl. 528-128.000.

Zatorre, Alfredo E. Fastener and driving tool. 4,339,971, Cl. 81-436.000.

Zavatkay, Robert J., to Barnes Group Inc. Seat belt retractor spring assembly. 4,340,190, Cl. 242-107.000.

Zavatkay, Robert J., to Barnes Group Inc. Seat belt retractor spring assembly. 4,340,191, Cl. 242-107.000.

Zebron Corporation: *See*—
Crandal, Edwin L., 4,340,311, Cl. 366-336.000.

Zehnder, Richard: *See*—
Koch, Carl; Meyer, Rolf; and Zehnder, Richard, 4,340,292, Cl. 354-275.000.

Zellweger Limited: *See*—
Baumann, Eduard; and Kniel, Roger, 4,340,880, Cl. 340-310.00R.

Zemanek, Josef: *See*—
Wintzer, Klaus; Zemanek, Josef; and von Sichart, Frithjof, 4,340,962, Cl. 370-100.000.

Zemlyanov, Leonid S.: *See*—
Chichkin, Valentin P.; Shpigel, Efraim A.; Gokin, Gennady P.; Matjuschenko, Georgy E.; Kurakov, Nikolai N.; Rabinovich, Grigory B.; Samoilovsky, Sergei A.; Angel, Boris S.; Ilienko, Vladimir S.; Miterev, Vladimir P.; Zemlyanov, Leonid S.; and Krutkov, Anatoly F., 4,339,906, Cl. 56-327.00R.

Zhovtobrjukh, Grigory D.: *See*—
Kucher, Valery N.; Popenko, Alexandr Z.; Reiman, Georgy R.; Durachenko, Mikhail I.; and Zhovtobrjukh, Grigory D., 4,340,445, Cl. 202-262.000.

Zipatone Inc.: *See*—
Griffiths, Kenneth G.; and Woods, Stephen C., 4,339,886, Cl. 40-595.000.

Zitzman, George E. Variable capacity feed reel for coiled wire. 4,340,193, Cl. 242-129.720.

Zorner, Paul: *See*—
Bar, Helmut; Mader, Herbert; Muck, Karl-Friedrich; and Zorner, Paul, 4,340,542, Cl. 549-368.000.

Zotov, Alexandr I.: *See*—
Grishin, Boris P.; Gruznov, Alexandr G.; Romanov, Leonid M.; Vishnyak, Julian I.; Shugaeva, Nina A.; Bychkov, Nikolai M.; Lipets, Konstantin V.; and Zotov, Alexandr I., 4,340,720, Cl. 528-232.000.

Zuhlke, Jochen: *See*—
Wepner, Joachim; Wengenroth, Kurt; and Zuhlke, Jochen, 4,339,972, Cl. 83-13.000.

Zurbuchen, Jacques: *See*—
Evans, David G.; Zurbuchen, Jacques; and Leutenegger, Willi, 4,340,387, Cl. 8-580.000.

LIST OF REISSUE PATENTEES

TO WHOM

PATENTS WERE ISSUED ON THE 20TH DAY OF JULY, 1982

NOTE—Arranged in accordance with the first significant character or word of the name (in accordance with city and telephone directory practice).

Briles, Franklin S. Taper headed fastener to increase work fatigue life. Re. 30,997, Cl. 403-388.000.

Dolgos, Charles: *See—*
Pobuta, Walter; and Dolgos, Charles, Re. 30,996, Cl. 140-123.600.

Owens-Illinois, Inc.: *See—*
Peters, Homer D. F., Re. 30,998, Cl. 65-163.000.

Peters, Homer D. F., to Owens-Illinois, Inc. Hot gob detector for controlling a glassware forming machine. Re. 30,998, Cl. 65-163.000.

Pobuta, Walter; and Dolgos, Charles, to Thomas & Betts Corporation. Strap tension sensing and cut off mechanism. Re. 30,996, Cl. 140-123.600.

Thomas & Betts Corporation: *See—*
Pobuta, Walter; and Dolgos, Charles, Re. 30,996, Cl. 140-123.600.

Tinsler, Theodore E., to White-Westinghouse Corporation. Humidifer drive system. Re. 30,999, Cl. 261-92.000.

White-Westinghouse Corporation: *See—*
Tinsler, Theodore E., Re. 30,999, Cl. 261-92.000.

LIST OF DESIGN PATENTEES

AB Svenska Flaktfabriken: *See—*
Svensson, Gunnar, 265,511, Cl. D25-92.000.

Abe, Noboru; Goto, Akio; and Seiffert, Florian, to Matsushita Electric Works, Ltd. Hair dryer. 265,514, 7-20-82, Cl. D28-12.000.

Ajia Amerikan Boueki Kabushiki Kaisha: *See—*
Yamazaki, Shogo, 265,479, Cl. D16-6.000.

Alcan Aluminum Corporation: *See—*
Popek, Stephen, 265,509, Cl. D25-74.000.

Alpha Racing Boats, Inc.: *See—*
Pape, Timothy W., 265,475, Cl. D12-303.000.

American International Industries, Inc.: *See—*
Menashe, J. Nissim, 265,441, Cl. D6-17.000.

American Standard Inc.: *See—*
Paul, Stanley M., 265,498, Cl. D23-25.000.

Andrulionis, Algis S.; and Mancini, Dereck V., to Consumers Glass Company Limited. Packaging cup. 265,462, 7-20-82, Cl. D9-429.000.

Antocks Lairn Limited: *See—*
Webb, Roger L., 265,443, Cl. D6-67.000.

Appel, Mel; and Kress, George, to Appel, Mel. Toy blimp. 265,488, 7-20-82, Cl. D21-87.000.

Appleman, Donald T., to Procter & Gamble Company, The. Continuous sheet material or the like. 265,519, 7-20-82, Cl. D59-2.00B.

Aqualine Products Limited: *See—*
Littlefield, Reg, 265,457, Cl. D8-351.000.

Archer, Brice B. Plaque. 265,472, 7-20-82, Cl. D11-135.000.

Baldwin, John G., to Thomas Ashworth & Co. Limited. Moisture tester. 265,465, 7-20-82, Cl. D10-56.000.

Baldwin, John G., to Thomas Ashworth & Co. Limited. Moisture tester. 265,466, 7-20-82, Cl. D10-56.000.

Balma, Lawrence M.: *See—*
Dominy, David A.; and Balma, Lawrence M., 265,495, Cl. D21-226.000.

Bannwart, Rene, to Corum, Ries, Bannwart & Co. Watch case. 265,464, 7-20-82, Cl. D10-38.000.

Bartsch, Gunther M. Fireplace. 265,499, 7-20-82, Cl. D23-94.000.

Bedwell, Paul E., Jr. Asphalt strip roofing shingle or similar article. 265,510, 7-20-82, Cl. D25-80.000.

Berkley and Company, Inc.: *See—*
McMickle, Robert L., 265,496, Cl. D22-23.000.

Berlin, Daniel, to Roblin Industries, Inc. Storage-preventing base for shopping cart. 265,518, 7-20-82, Cl. D34-17.000.

Berryman, Denise. Coffee table. 265,450, 7-20-82, Cl. D6-175.000.

Bressler, Peter W., to Edmund Scientific Company. Telescope. 265,482, 7-20-82, Cl. D16-132.000.

Bristoline, Inc.: *See—*
Kaneda, Nobuo, 265,505, Cl. D24-21.000.

Clanton, Robert A.: *See—*
Winslow, Donald L.; and Clanton, Robert A., 265,456, Cl. D8-99.000.

Combi Co., Ltd.: *See—*
Nakao, Shinroku; Ishii, Yoshiyasu; and Matsumoto, Susumu, 265,491, Cl. D21-161.000.

Consumers Glass Company Limited: *See—*
Andrulionis, Algis S.; and Mancini, Dereck V., 265,462, Cl. D9-429.000.

Continental Group, Inc., The: *See—*
Hasegawa, Gary K., 265,463, Cl. D9-438.000.

Corum, Ries, Bannwart & Co.: *See—*
Bannwart, Rene, 265,464, Cl. D10-38.000.

Cotes, John P. Deodorant dispenser for a toilet tank or the like. 265,501, 7-20-82, Cl. D23-150.000.

Dominy, David A.; and Balma, Lawrence M., to Tracker Designs, Ltd. Roller skate. 265,495, 7-20-82, Cl. D21-226.000.

Downs, Rictor J. Enclosure for the bed of a pick-up truck. 265,474, 7-20-82, Cl. D12-156.000.

Duggan, James E. Combined towel rack and shelf. 265,445, 7-20-82, Cl. D6-91.000.

Dunchock, Richard S., to SL Container Corporation. Storage cart. 265,517, 7-20-82, Cl. D34-17.000.

Economics Laboratory, Inc.: *See—*
Wilson, James L., 265,460, Cl. D9-378.000.

Edmund Scientific Company: *See—*
Bressler, Peter W., 265,482, Cl. D16-132.000.

Finamore, Peter G. Tongue scraper. 265,506, 7-20-82, Cl. D24-23.000.

Franz, Reinhard, to WERSI Electronic GmbH & Co. Electronic organ. 265,483, 7-20-82, Cl. D17-6.000.

Fritzke, Audrey L. Novelty statuette or the like. 265,470, 7-20-82, Cl. D11-131.000.

Goto, Akio: *See—*
Abe, Noboru; Goto, Akio; and Seiffert, Florian, 265,514, Cl. D28-12.000.

Grossman, Robert D. Article display stand. 265,442, 7-20-82, Cl. D6-27.000.

Harris, Warren D., to Jedseth Products. Storage unit for locker or the like. 265,447, 7-20-82, Cl. D6-131.000.

Hasegawa, Gary K., to Continental Group, Inc., The. End closure for a container. 265,463, 7-20-82, Cl. D9-438.000.

Haythornthwaite, Peter F.: *See—*
Karn, Richard M.; and Haythornthwaite, Peter F., 265,489, Cl. D21-88.000.

Hegnes, Candace S.: *See—*
Hegnes, Lois E.; Hegnes, Candace S.; and Hegnes, Herbert S., 265,469, Cl. D11-75.000.

Hegnes, Herbert S.: *See—*
Hegnes, Lois E.; Hegnes, Candace S.; and Hegnes, Herbert S., 265,469, Cl. D11-75.000.

Hegnes, Lois E.; Hegnes, Candace S.; and Hegnes, Herbert S. Coffee bean pendant. 265,469, 7-20-82, Cl. D11-75.000.

Holstine, Patricia I. Toy seal. 265,490, 7-20-82, Cl. D21-157.000.

Iijima, Takekazu, to Pioneer Kabushiki Kaisha. Loudspeaker. 265,477, 7-20-82, Cl. D14-34.000.

Integral Design, Inc.: *See—*
Liptak, Richard M., 265,448, Cl. D6-140.000.
Liptak, Richard M., 265,485, Cl. D20-10.000.

Ishii, Yoshiyasu: *See—*
Nakao, Shinroku; Ishii, Yoshiyasu; and Matsumoto, Susumu, 265,491, Cl. D21-161.000.

Iwasaki, Osamu, to Slik Tripod Co., Ltd. Tripod head. 265,481, 7-20-82, Cl. D16-46.000.

J. B. Originals, Inc.: *See—*
Lanahan, John B., 265,471, Cl. D11-133.000.

Jaffe, Myron. Runner's shoe plate. 265,438, 7-20-82, Cl. D2-317.000.

Jedseth Products: *See—*
Harris, Warren D., 265,447, Cl. D6-131.000.

Johanson, Sandra L. Doll. 265,492, 7-20-82, Cl. D21-173.000.

K & S Industries, Inc.: *See—*
Krug, Charles C., 265,503, Cl. D23-163.000.

Kaneda, Nobuo, to Bristoline, Inc. Electronic sphygmomanometer. 265,505, 7-20-82, Cl. D24-21.000.

Karn, Richard M.; and Haythornthwaite, Peter F. Toy glider. 265,489, 7-20-82, Cl. D21-88.000.

Kearnes, Thomas L., to Questor Corporation. Ceiling fan. 265,502, 7-20-82, Cl. D23-158.000.

Keller, Huey T., to Vaughan Furniture Company, The. Mirror frame. 265,452, 7-20-82, Cl. D6-234.000.

Kobayashi, Masashi, to Maruman Golf Kabushiki Kaisha. Golf club head. 265,494, 7-20-82, Cl. D21-220.000.

Kress, George: *See*—
Appel, Mel; and Kress, George, 265,488, Cl. D21-87.000.
Kringhie, Gerry. Body-mounted basketball ball shooting aid. 265,493, 7-20-82, Cl. D21-201.000.
Krug, Charles C., to K & S Industries, Inc. Housing for power blower. 265,503, 7-20-82, Cl. D23-163.000.
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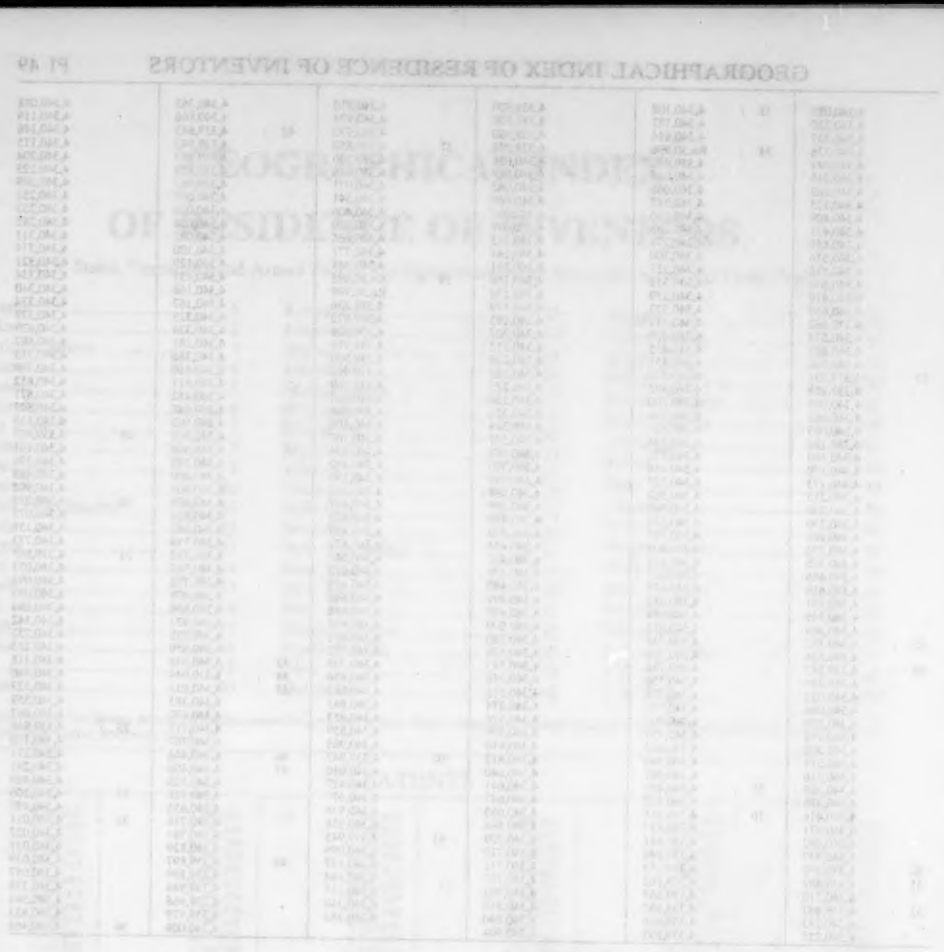

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